

**British West Indies Central Sugar Cane
Breeding Station, Barbados**

**TWENTY-THIRD
ANNUAL REPORT**

For the Year Ending September 30th, 1956



British West Indies Central Sugar Cane Breeding Station Barbados

Table of Contents

	PAGE
I. RESEARCH WORK	3
II. SUGAR CANE BREEDING — SEEDLING SELECTION AND TRIALS	7
III. DESPATCH OF SEEDLINGS TO CONTRIBUTING COLONIES	40
IV. PERFORMANCE OF VARIETIES IN CONTRIBUTING COLONIES	41
V. STATEMENT OF EXPENDITURE FOR 1955—56	45
APPENDIX I	46
APPENDIX II	50

Table of Contents

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I. RESEARCH WORK

General

The staff of the Station was augmented during the year by the appointment of Mr. D. I. T. Walker as Junior Geneticist. Arrangements were made for Mr. Walker to undertake a year's post-graduate training in biometrical genetics under Professor K. Mather, F.R.S., at the University of Birmingham before proceeding to Barbados.

The Senior Geneticist visited British Guiana and Jamaica in connection with seedling raising and testing for the production of varieties resistant to Leaf Scald and Mosaic respectively. He also visited the Hawaiian Islands for discussion of mutual problems with the geneticists of the Experiment Station of the Hawaiian Sugar Planters' Association, and Washington for discussions with Dr. Tysdal, Head of the Sugar Crops Division of the U.S. Department of Agriculture, and Dr. Price, Cytologist. Subsequently, he proceeded on vacation leave to England.

The hurricane of September 1955, caused some damage to sugar cane trials in Barbados, and as a result, useful information on the responses of varieties to high winds was obtained. Fortunately, damage to the breeding plots was only slight, and a full breeding programme was carried out. Details of this, and of the seedling trials reaped during the crop season, are given in later sections of this Report.

It is a pleasure to record an appreciation of the loyalty and keenness of the Station's staff, and of the advice and co-operation received during the year from the Director of Agriculture, Barbados, and the staff of his Department.

The Technique of Sugar Cane Breeding

Further experiments were made in the design of the hybridisation lanterns, and a satisfactory type was developed which is less costly to construct and more easily portable than the standard Barbados type. Lanterns of the new type were used on a considerable scale during the breeding season. The use of these new lanterns, which are erected on a single pole and without the permanent ladder of the older type, is dependent upon a breeding technique allowing of pollen shedding from male arrows maintained in a preservative solution. The method also obviates

the necessity of early-morning collection of male arrows and daily hand-pollination. The use of a series of organic oxidase inhibitors was investigated in experiments to devise a method by which normal flowering could proceed in cut arrows: none of these proved in any way superior to the organo-mercurial "Aretan", which at 0.01% permits of normal flowering and pollen-shedding for 4—5 days. Experiments with marcotting, using a rooting medium of composted bagasse in pliofilm covering, indicated that canes showing early signs of arrowing could be easily rooted and removed from the stools and transferred in good condition to pots, but that further experiments are necessary to ensure normal arrow emergence in such canes under Barbados conditions.

The Breeding Programme

In the general breeding programme, the most notable change was the introduction of a considerable proportion of inbred-crosses. With the large-scale use of inter-specific hybrids in the breeding work, a sufficient degree of variation is obtained in such inbred-crosses without loss of vigour, and the method has particular value in special breeding lines, as for instance, in developing varieties resistant to mosaic and leaf scald. The first close inbred to be recommended for commercial cultivation in Barbados, B.49119, continued to give exceptionally promising results in its trials, particularly as a ratoon. Though unfortunately rather liable to damage by high winds, this variety will undoubtedly be planted on a large scale in the Caribbean in the near future: indications are that it might increase sugar yields by as much as ten per cent in some areas.

For the control of arrowing, it was shown that for a normally heavy arrowing variety, spraying with a 1% solution of maleic hydrazide about 8 weeks before the normal date of arrow emergence resulted in a significantly lower percentage of arrows per stool. Arrowing was, however, not completely inhibited, nor was it appreciably delayed.

Experiments with the use of x-rays to promote mutation were begun. Dry fuzz from two selfed lines, in which little variation would be expected without treatment, was irradiated at dosages varying from 50 to 1,000 r. Germination counts showed that even at the highest dosage used, there was no noticeable effect on viability of seed. Observations will be made at a later stage in the seedlings' development to note whether mutation has been induced.

Cytogenetics Research

Good progress was made in the development of pure lines in the cytogenetics research programme. Contrary to expectations expressed in some quarters, fertility has been well maintained in most of the inbred lines, and with a few notable exceptions, flowering has been sufficient for continuation of the lines by selfing. The expected loss in vigour after several generations of selfing has become evident in all lines: the conclusion to be drawn, however, from observations on flowering in such material is that genetic characters, rather than vigour, control the degree of flowering in sugar cane, at least so far as differences in one environment are concerned.

Lines now available represent third and fourth generation selfs from the foundation parents B.3337, B.37161, B.4098, B.41211, B.34104, B.35276, B.41227 and B.44234. Attempts to carry the lines from B.2935 (a noble cane) beyond the F1 stage have so far been unsuccessful due to sterility, though meiosis appeared to be regular in the pollen mother cells of the first generation selfs.

On account of genome duplication and cytological irregularity in these aneuploid lines, it is to be expected that progress towards homozygosity might be slower than

in simple diploids. Such is indeed the case, for there is appreciable variation in growth type in several lines at the F3 and F4 stage. In others — particularly those from B.3337 and B.41211 — fixation of vegetative characters has occurred to a remarkable degree.

Preliminary work to assess the value of certain lines for breeding was begun during the season, though in all lines the main project was to obtain further selfs in order to carry them another stage towards homozygosity.

Top crosses (between proven parents and inbred derivatives) and interline crosses between inbreds were made in order to evaluate the lines as breeding material. Satisfactory germinations were obtained in most of these crosses, and the performance of the seedlings is awaited with interest.

Two populations of second-generation selfs from B.4362, which is a tri-species hybrid, showed an interesting reversion to the growth-characters of the *spontaneum* ancestor. This is interpreted as an example of a cytological mechanism which tends to avoid dilution of characters differentiating between species, and in which only gametes with certain gene arrays are viable. Similar examples have been reported for other genera. Selfs from certain of these "reverted" individuals were raised, and examination showed that they breed true to the *spontaneum* growth habit.

Reciprocal crosses were made in the 1955 breeding programme, in order to investigate the evidence for cytoplasmic inheritance of certain characters, which the Indian sugar cane breeders claim to have observed.

The Heredity of Disease Resistance

The available evidence suggests that resistance to Mosaic is associated with chromosomes derived from the 112-chromosome *S. spontaneum* of Java and from *S. sinense*, but not from *S. officinarum* (the noble canes), from the 64-chromosome *S. spontaneum* of India or from *S. robustum*. In the complex interspecific hybrids now used so extensively as parent varieties, there are no means as yet of identifying chromosomes from the various progenitor species, and moreover the phenomena of segregation result sometimes in susceptible individuals arising from two resistant parents, or resistant ones from crosses between parents one or both of which are susceptible. Nevertheless, it is reasonable to anticipate — and the results of tests made in Jamaica show that such is the case — that crosses in which one or both parents are resistant are more likely to give a good proportion of resistant offspring than those made regardless of parental resistance. As an example, seedlings of the B.49' and B.50' series, selected in Barbados from Second Year Trials and allocated to Jamaica on the basis of parental resistance, numbered thirty-eight. Of these, subsequent resistance tests showed that twenty-five are resistant, representing almost 66%. Similar results were obtained in testing the resistance in Jamaica of seedling populations from crosses in which one or both parents were resistant: in populations of 236 and 149 respectively, resistant individuals represented 68% and 63%. In a more recent consignment, some 75% of seedlings proved resistant, and complete control of the disease in commercial plantations is now in sight by the use of resistant varieties.

In the Caribbean sugar growing territories, Leaf Scald Disease occurs only in British Guiana and Dutch Guiana*. In a programme to breed suitable resistant varieties for British Guiana, it is of course necessary to carry out the resistance testing there, both for parent material and for the seedling offspring. Moreover, resistance

*Since this report was written, it has been confirmed in Martinique.

data from other countries where the disease exists need have no reference to the situation in British Guiana, as there is good presumptive evidence that the strain of bacterium responsible for the disease in British Guiana is different from that in Mauritius, Australia and elsewhere. For instance, in British Guiana the variety B.34104 is highly susceptible, whereas in Mauritius it has been grown for a number of years without any signs of the disease, and has recently been released for commercial cultivation. The variety M.112/34 behaves similarly. Also, in Australia the variety Pindar is rated as highly resistant — so much so that it can be grown in presence of the disease without any precautions — whereas in British Guiana it is classed as Susceptible-Tolerant. Certain of the well known Hawaiian varieties, commercially resistant to the strain of bacterium in their country of origin, are known to be highly susceptible in British Guiana — even more so than B.34104, which has been since the discovery of the disease in 1950, the standard of high susceptibility.

From the point of view of breeding, some significant results have emerged from the testing of a range of parent material for resistance to Leaf Scald in British Guiana. All the forms of *Saccharum spontaneum* so far tested are resistant, as are also several 1st and 2nd nobilisations in the *spontaneum* series, indicating the occurrence of resistance genes at this source. *Saccharum robustum* forms, on the other hand, show high susceptibility, and are evidently useless as parents in a programme to breed resistant varieties. Varieties of *Saccharum officinarum*, the 'noble' canes, vary a good deal in resistance, and the *S. sinense* forms, which are now thought to have arisen from *officinarum-spontaneum* hybrids, fall into the intermediate classes designated Tolerant and Susceptible-Tolerant.

Of the potential commercial Barbados varieties for which published resistance status data are available, 194 have been tested. Of these, 28 are classed as Very Susceptible, 20 as Susceptible, 30 as Susceptible-Tolerant, 72 as Tolerant, and 44 as Resistant. It is encouraging, from the point of view of controlling the disease through breeding, to find so high a proportion of the varieties in the Tolerant and Resistant classes.

A third disease which has recently become of serious consequence in the Station's contributing territories is Chlorotic Streak, which causes economic losses particularly in the high rainfall areas of Jamaica and in British Guiana. It does not occur in Barbados. So far as Jamaica is concerned, it is unfortunate that a high proportion of varieties carrying resistance to Mosaic are susceptible to Chlorotic Streak (e.g. B.37172 and B.4362). This indicates that resistance genes will have to be sought elsewhere than in the 112-chromosome *S. spontaneum* derivatives. In breeding for resistance to this disease, it is necessary to obtain data on the reaction of parent varieties and potential commercial seedlings in Jamaica and British Guiana. Consequently, arrangements were made during the year to send consignments of breeding varieties, representing a wide range in derivation, to these Colonies for testing.

Work during the year on Ratoon Stunting Disease included the laying-down of an experiment to investigate yield losses through infection in the variety B.41211, and the long hot-water treatment of varieties in the breeding plots.

Laboratory Work

On account of the absence of the Senior Geneticist on official visits to British Guiana, Jamaica and Hawaii, and on vacation leave to the United Kingdom, laboratory research was of necessity somewhat curtailed during the year.

Further experiments in the technique of preparation for counting of chromosomes showed that root-tip squashes, reported as successful in Taiwan and Queensland, show no promise in Barbados owing to difficulties of hydrolysis of the material. This experience is similar to that reported from South Africa, Hawaii and Florida. On the other hand, the use of embryonic leaf tissue from germinating buds shows considerable promise, and it is hoped that a more rapid and convenient method than that with embedded and sectioned root-tips will be worked out shortly. Dr. Price, Cytologist employed jointly by the U.S. Department of Agriculture and the Hawaiian Sugar Planters' Association and stationed at Washington, has evolved and published a similar method for chromosome counting, which was discussed with him during the Senior Geneticist's visit in April.

Chromosome counts were made for several imported and locally bred varieties, and for a large number of inbred derivatives in the pure lines. Selfed derivatives from aneuploids generally suffer some loss of chromosomes in the early stages of pure line development, doubtless due to non-inclusion of univalents in the daughter gametes, but an approach to chromosome stability has been observed as a degree of homozygosity is developed. Counts in the lines from B.4098, which has 109 chromosomes, were from 105 to 109, though some individuals showed 110 and 112 chromosomes. Due to irregular meiosis, it is sometimes found that derivatives show more chromosomes than the selfed progenitors in polyploid interspecific hybrids. Third generation selfs from the foundation parent B.35276 (120 chromosomes) showed from 102 to 104. The greatest losses of chromosomes were found in the *spontanum*-like derivatives obtained as second-generation selfs from B.4362, which itself has 118 chromosomes. Four of these showed counts of only 87—92 chromosomes.

Publications

- (1) G. C. STEVENSON — Variety Improvement in Sugar Cane. *Proc. B.W.I. Sugar Cane Tech. Conf. Barbados* (1955).
- (2) G. C. STEVENSON — The Problem of Breeding High-sucrose Sugar Cane Varieties. *Proc. Int. Soc. Sugar Cane Tech. India* (1956).
- (3) G. C. STEVENSON — Report on a Visit to Hawaii. April — May 1956. *B.W.I. Cent. Sugar Cane Br. Stn. Bull.* 38.

II. SUGAR CANE BREEDING — SEEDLING SELECTION AND TRIALS

(i) SUGAR CANE BREEDING — B.58' SERIES

The seedlings of this series were bred at Groves Agricultural Station from October 1955 to January 1956. The usual methods were employed in the controlled crossing of the various sugar cane varieties. Flowering was profuse and all arrow lanterns were in use. One hundred and twelve crosses were made, as well as thirty-two selfs, sib-crosses and top-crosses for the cytogenetics programme.

(ii) SEEDLING RAISING, POTTING AND PLANTING IN THE FIELD NURSERY — B.57' SERIES

Germination was fairly good, but as always happens, some crosses gave few seedlings and others none at all. It is estimated that over 62,000 seedlings germinated.

All of these were potted, 13,124 singly, and 8,214 bunches of 5—10 seedlings each. Ten thousand five hundred and seventy-nine singles and 6,413 bunches survived and were planted in the First Year Seedling Nursery.

Losses in the potting stage were relatively heavy when potting was started. To begin with a compost mixture of sterile soil and rotted bagasse was used as the potting medium. It was found that this mixture would not absorb water readily when the dry mixture was used for potting. The mixture was therefore sprayed with water, mixed thoroughly and allowed to remain over night before being used for potting. The seedlings appeared to take well in this mixture, but as soon as they were removed from the shade of the potting cistern, they started to wither and died in large numbers. Further potting was stopped until the reason for this peculiar behaviour was investigated. Experiments quickly showed that a mixture of $\frac{1}{3}$ bagasse or filter press mud and $\frac{2}{3}$ soil resulted in a normal take. Potting was accordingly continued. Later in the season, it was found that chlorosis had developed in some of the crosses potted in bagasse compost. Heavy applications of a 2:1:1 mixture of sulphate of ammonia, muriate of potash and superphosphate resulted in a great improvement in the appearance of most of these chlorotic seedlings. The seedlings were eventually transplanted to the Field Nursery in May and subsequently made excellent growth.

Table I gives, under group heads, a list of the crosses made, the numbers of seedlings germinated, potted and planted in the Field Nursery, while Appendix I gives details for all crosses made.

TABLE I

Number of Crosses and Seedlings in each group germinated, potted singly and in bunches, and planted in the Field Nursery — B.58' Series

GROUP	No. of Crosses	No. Germ-inated	No. Potted Singly	No. Potted in Bunches	No. of Singles planted in Field Nursery	No. of Bunches planted in Field Nursery
<i>S. officinarum</i> x <i>S. spontaneum</i>						
3rd Glagah Nobilisation ...	3	697	372	60	262	47
4th Glagah Nobilisation ...	2	—	—	—	—	—
Noble x Local x Glagah ...	8	1,908	1,408	95	1,126	95
Noble x Glagah x Celebes ...	1	10	10	—	—	—
Noble x Glagah x Dacca ...	2	12	12	—	7	—
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i>						
Noble x Glagah x Chunnee ...	16	11,630	1,225	1,703	640	1,348
Noble x Local x Chunnee ...	1	23	23	—	9	—
Noble x Glagah x Local x Chunnee ...	58	29,125	7,435	3,387	6,328	2,402
Noble x Glagah x Local x Celebes x Chunnee ...	4	7,246	400	1,278	361	1,127
Noble x Glagah x Local x Tukuyu x Chunnee ...	1	8	8	—	7	—
Noble x Glagah x Celebes x Chunnee ...	1	150	150	—	147	—

TABLE I (Concluded)

GROUP	No. of Crosses	No. Germ- inated	No. Potted Singly	No. Potted in Bunches	No. of Singles planted in Field Nursery	No. of Bunches planted in Field Nursery
<i>S. officinarum</i> x <i>S. sinense</i> ...						
2nd Nobilisation sinense ...	1	5	5	—	3	—
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> x <i>S. sinense</i> Noble x Glagah x Local x Chunnee x Sinense ...	13	5,717	1,297	784	1,059	695
Noble x Local x Chunnee x Sinense ...	1	59	59	—	46	—
<i>S. officinarum</i> x <i>S. barberi</i> x <i>S. sinense</i> Noble x Chunnee x Sinense ...	1	160	160	—	105	—
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. sinense</i> Noble x Celebes x Sinense ...	1	60	60	—	45	—
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. robustum</i> Noble x Celebes x Robustum ...	1	50	50	—	37	—
Noble x Glagah x Robustum ...	1	—	—	—	—	—
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> x <i>S. robustum</i> Noble x Glagah x Chunnee x Robustum ...	2	1,522	300	207	285	115
Noble x Glagah x Local x Chunnee x Robustum ...	1	3,000	—	500	—	444
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. sinense</i> x <i>S. robustum</i> Noble x Glagah x Sinense x Robustum ...	1	1,000	—	200	—	140
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> x <i>S. sinense</i> x <i>S. robustum</i>	1	150	150	—	112	—
TOTALS ...	121	62,532	13,124	8,214	10,579	6,413

(iii) PLANTING THE FIRST YEAR SEEDLING TRIAL — B.57' SERIES

These seedlings were selected from the First Year Seedling Nursery in October 1955. The selected seedlings were planted in the First Year Seedling Trial at Codrington. The nursery was badly damaged by the hurricane on September 22, 1955, the canes having been flattened by high winds from the north and some of them were then blown up and flattened in the other direction by winds from the south. Many of the canes were broken off and all of the cane was a tangled mass. Selection under these conditions was difficult, and took longer than would otherwise have been the case. A total of 4,166 seedlings was selected, and these were planted, along with stools of a standard variety in every fifth cane-hole, in the First Year Trial. Since stools of a standard variety have been introduced into the First Year Seedling Trial, the necessity for replicating the progeny of any cross has ceased to exist, and the seedlings have accordingly been planted in a single block.

The number of crosses and seedlings in each group planted in the First Year Seedling Trial is given in Table II, while the detail figures for each cross are presented in Appendix II.

TABLE II

Number of Crosses and Seedlings in each group planted in the First Year Seedling Trial — B.57' Series

GROUP	No. of Crosses	NO. OF SEEDLINGS PLANTED IN THE FIELD NURSERY		No. of Seedlings planted in First Year Seedling Trial
		Single	Bunches	
<i>S. officinarum</i> x <i>S. spontaneum</i>				
3rd Nobilisation Glagah	1	11	—	—
3rd Nobilisation Local	1	17	—	5
Noble x Local x Glagah	4	809	760	358
Noble x Glagah x Celebes	2	122	—	41
Noble x Glagah x Local x Celebes ...	2	321	266	134
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> ...				
Noble x Glagah x Chunnee	4	729	22	246
Noble x Local x Chunnee	3	278	13	57
Noble x Local x Glagah x Chunnee ...	38	3,604	2,361	1,660
Noble x Local x Glagah x Celebes x Chunnee	10	1,143	715	459
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> x <i>S. sinense</i>				
Noble x Local x Chunnee x Sinense ...	1	178	5	55
Noble x Glagah x Chunnee x Sinense ...	4	48	—	23
Noble x Local x Glagah x Celebes x Chunnee x Sinense	2	35	—	18
Noble x Local x Glagah x Chunnee x Sinense	11	2,189	1,152	920
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> x <i>S. robustum</i>				
Noble x Glagah x Chunnee x Robustum	1	259	16	70
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. robustum</i>				
Noble x Glagah x Robustum	1	193	9	48
Noble x Celebes x Robustum	1	230	—	42
Noble x Local x Glagah x Robustum ...	1	42	—	16
Position Uncertain at Present	1	57	—	14
TOTALS	88	10,265	5,319	4,166

(iv) RESULTS OF REAPING THE FIRST YEAR SEEDLING TRIAL
— B.56' SERIES

The seedlings of this series were cut in the First Year Seedling Trial during the past crop season. For the first time, stools of a standard variety were scattered at random among the seedlings. These greatly assisted in selection, border-line cases being rapidly eliminated either on weight or juice quality. The trial was cut in record time and the number of seedlings selected — 114 — the smallest since the early days of the Station's existence. However, it is felt that no seedling which might have been useful commercially has been overlooked, while time and labour will again be saved when these seedlings reach the Second Year Seedling Stage.

Table III gives details of the Field and Final Selections made from each cross.

TABLE III

First Year Seedlings — B.56' Series Field and Final Selections

Cross	No. of Seedlings Cut	No. Selected in Field	% Field Selection	No. Final Selection	% Final Selection
Ba.11569 x B.4362	7	—	—	—	—
Ba.11569 x B.44341	8	—	—	—	—
Ba.11569 x B.47419	22	—	—	—	—
Ba.11569 x B.48392	40	—	—	—	—
Ba.11569 x B.49380	7	—	—	—	—
B.3353 x B.4744	15	1	7	—	—
B.3353 x B.47419	149	5	3	3	2
B.3365 x B.47419	91	5	5	1	1
B.3365 x Co.419	30	—	—	—	—
B.3439 x B.3337	69	6	9	2	3
B.3439 x B.4362	11	—	—	—	—
B.3439 x B.43375	111	6	5	4	4
B.3439 x B.45236	104	5	5	1	1
B.3439 x B.48394	21	—	—	—	—
B.34102 x B.47419	296	6	2	5	2
B.35206 x B.4098	50	1	2	—	—
B.35206 x B.47198	38	1	3	—	—
B.35207 x P.O.J.2878	61	1	2	—	—
B.35247 x B.42231	24	—	—	—	—
B.37161 x B.39274	4	—	—	—	—
B.37161 x B.4098	119	5	4	4	3
B.37161 x B.43337	18	—	—	—	—
B.37161 x B.48259	30	—	—	—	—
B.37161 x B.48372	34	5	15	3	9
B.37161 x B.4905	60	4	7	4	7
B.37161 x B.4995	3	—	—	—	—
B.37161 x P.O.J.2878	21	—	—	—	—
B.37172 x B.41211	42	4	10	2	5
B.37172 x B.4744	7	1	14	—	—
B.38212 x P.O.J.2878	67	—	—	—	—
B.39254 x B.34104	14	1	7	1	7
B.39254 x B.4744	19	1	5	—	—
B.39254 x B.47306	27	3	11	1	4
B.4145 x B.4362	20	3	15	1	5
B.4145 x B.4788	203	15	7	7	3
B.4145 x B.48259	46	2	4	1	2
B.4145 x B.50382	8	—	—	—	—
B.4145 x P.O.J.2878	40	1	3	1	3
B.42279 x B.47419	38	2	5	1	3
B.42304 x B.4098	89	2	2	1	1
B.42304 x B.47419	89	2	2	2	2
B.4362 x B.38192	27	2	7	—	—
B.4362 x B.4098	43	3	7	2	5
B.4362 x B.41227	70	1	1	1	1
B.4362 x B.49397	16	2	13	1	6
B.4362 x Co.290	16	1	6	1	6
B.43283 x B.41227	84	3	4	3	4
B.43349 x B.47320	329	10	3	8	2
B.43358 x B.47419	11	—	—	—	—
B.4455 x B.603	30	2	7	1	8
B.44111 x B.4098	11	2	18	2	18
B.44130 x B.603	14	1	7	1	7
B.44132 x B.603	8	2	3	1	1

TABLE III (Concluded)

Cross	No. of Seedlings Cut	No. Selected in Field	% Field Selection	No. Final Selection	% Final Selection
B.44233 x B.603 ...	73	3	4	3	4
B.44305 x B.4098 ...	17	2	6	2	6
B.4502 x B.47419 ...	63	2	3	1	1
B.4502 x P.O.J.2878 ...	52	2	4	—	—
B.4547 x B.603 ...	12	1	8	1	8
B.4558 x B.4098 ...	10	2	20	—	—
B.4587 x B.391 ...	9	1	11	1	11
B.45104 x P.O.J.2878 ...	45	1	2	—	—
B.45117 x B.4744 ...	12	3	25	2	17
B.45117 x B.47419 ...	19	1	5	1	5
B.45121 x P.O.J.2878 ...	15	3	20	3	20
B.45170 x B.4744 ...	20	5	25	4	20
B.45170 x P.O.J.2878 ...	12	—	—	—	—
B.45198 x B.603 ...	22	1	5	—	—
B.45220 x B.47419 ...	60	1	2	1	2
B.46103 x B.4098 ...	18	1	6	1	6
B.46199 x B.47419 ...	8	—	—	—	—
B.4733 x B.39220 ...	16	3	19	1	6
B.47183 x B.46136 ...	25	1	4	1	4
B.4881 x B.4098 ...	138	3	2	1	1
B.48330 x B.46136 ...	43	1	2	1	2
B.48361 x B.391 ...	17	1	6	—	—
B.49281 x B.603 ...	5	1	20	1	20
B.49353 x B.34104 ...	10	—	—	—	—
B.49388 x B.H.10(12) ...	28	1	4	—	—
B.51244 x B.34104 ...	36	2	6	1	3
Co.421 x B.37193 ...	30	1	3	—	—
Co.421 x B.39156 ...	46	1	2	—	—
Co.421 x B.4098 ...	128	6	5	3	2
Co.421 x B.40102 ...	64	3	5	2	3
Co.421 x B.41211 ...	290	19	7	10	3
Co.421 x B.4381 ...	4	—	—	—	—
Co.421 x B.43375 ...	151	8	5	3	2
Co.421 x B.47419 ...	108	5	5	2	2
P.O.J.2878 x B.34104 ...	34	2	6	1	3
S.45 x B.41227 ...	32	1	3	1	3

(v) PROGRESS WITH SEEDLINGS OF THE B.55' SERIES

The selections from this series were in multiplication plots at Codrington. A minor selection in October reduced the number from 371 to 202. However, this number does not include five seedlings which were practically destroyed when a roof fell on them during the recent hurricane. These seedlings were replanted in multiplication plots along with seedlings of the B.56' Series. The 202 selections of the B.55' Series were planted in Second Year Seedling Trials at the low rainfall stations, Belle and Foursquare, and in duplicate trials at Hothersal and Pool.

(vi) PROGRESS WITH SEEDLINGS OF THE B.54' SERIES

Seedlings of this series were cut as plant canes in the Second Year Seedling Trials at the low rainfall station, Codrington (2 trials), and in duplicate trials at the high rainfall stations, Todds and Colleton. Nineteen seedlings were selected altogether, twelve of which will be tested further in Barbados, while in October next, selected consignments will be sent to contributing countries. The performances of the standards and selected seedlings are given in Tables IV and V.

TABLE IV

*Second Year Seedling Trials — Plant Canes — B.54' Series**Codrington — Cut — 29th February and 1st March, 1956**Todds — Cut — 4th — 6th April, 1956*

SEEDLING	PARENTAGE	No. OF CANES (ROTTEN)		% ARROWING		Z.H.R. BRIX		TONS CANE PER ACRE	
		Codrington	Todds	Codrington	Todds	Codrington	Todds	Codrington	Todds
GROUP I									
B.37161 ...	Standard ...	97(9)	143(17)	5	32	19.6	21.2	37.34	46.01
B.41211 ...	Standard ...	134(4)	—	—	—	19.4	—	50.50	—
B.4744 ...	Standard ...	—	153(18)	—	9	—	21.9	—	51.51
B.5401 ...	B.3439 x B.3337	151(8)	208(18)	—	14	20.6	23.0	38.50	50.40
B.5411 ...	B.37161 x B.47419	111(14)	151(27)	5	16	19.1	21.8	45.12	43.43
GROUP II									
B.37161	Standard ...	99(6)	123(25)	1	21	20.0	20.7	31.97	39.22
B.41211	Standard ...	139(2)	—	3	—	19.5	—	43.39	—
B.4744 ...	Standard ...	—	148(30)	—	17	—	21.2	—	49.19
B.5449 ...	Ba.11569 x B.39274	138(5)	175(21)	2	12	21.0	21.6	29.95	46.78
B.5452 ...	B.3439 x B.3337	114(4)	176(20)	—	34	20.7	23.0	33.79	43.34
GROUP III									
B.37161	Standard ...	95(7)	137(23)	6	15	19.7	20.7	33.02	40.51
B.41211	Standard ...	141(4)	—	—	—	20.0	—	42.43	—
B.4744 ...	Standard ...	—	120(44)	—	1	—	20.7	—	44.29
B.5463 ...	B.3439 x B.45122	135(4)	157(6)	2	64	20.9	21.5	33.31	45.41
B.5480	B.37172 x B.4098	139(3)	160(4)	1	2	19.7	21.9	40.22	56.50
B.5490 ...	B.37172 x B.46397	128(1)	138(21)	—	8	20.2	21.9	35.14	45.84
GROUP IV									
B.37161	Standard ...	87(7)	143(36)	—	19	19.6	20.3	38.37	39.56
B.41211	Standard ...	144(5)	—	2	—	19.5	—	47.71	—
B.4744 ...	Standard ...	—	149(31)	—	1	—	20.8	—	43.60
B.54142	B.44182 x B.45151	185(9)	185(19)	—	5	20.8	22.7	35.42	53.75

TABLE V

*Second Year Seedling Trials — Plant Canes — B.54' Series**Codrington — Cut 2nd and 5th March, 1956**Colleton — Cut 9th — 11th April, 1956*

SEEDLING	PARENTAGE	No. of CANES (ROTTEN)		% ARROWING		Z.H.R. BRIX		TONS CANE PER ACRE	
		Codrington	Colleton	Codrington	Colleton	Codrington	Colleton	Codrington	Colleton
GROUP VI									
B.37161	Standard ...	104(7)	120(14)	—	35	19.9	21.0	30.62	37.67
B.41211	Standard ...	127(4)	—	—	—	19.8	—	32.26	—
B.4744	Standard ...	—	144(10)	—	2	—	20.9	—	60.46
B.54163	B.4699 x P.O.J.2878	150(6)	178(7)	—	10	22.1	23.5	32.83	44.63
B.54172	B.47386 x B.4098	133(2)	183(8)	—	1	19.5	21.9	29.67	57.02
GROUP VII									
B.37161	Standard ...	102(3)	167(16)	—	7	20.7	21.6	29.80	45.15
B.41211	Standard ...	103(4)	—	—	—	19.8	—	31.49	—
B.4744	Standard ...	—	203(14)	—	—	—	21.0	—	70.26
B.54193	Co.421 x B.41211	157(2)	173(10)	—	7	19.7	21.0	36.96	52.55
GROUP VIII									
B.37161	Standard ...	87(5)	119(13)	—	29	19.6	20.8	28.03	39.30
B.41211	Standard ...	120(2)	—	—	—	19.5	—	33.12	—
B.4744	Standard ...	—	129(8)	—	5	—	21.3	—	60.63
B.54215	B.37172 x B.41211	123(6)	153(13)	1	—	21.0	21.4	30.24	54.27
B.54235	B.4145 x B.4098	108(4)	164(8)	—	3	19.8	21.4	27.26	59.60
B.54237	B.4145 x B.4098	137(4)	146(13)	—	8	19.9	21.3	28.03	50.31
GROUP IX									
B.37161	Standard ...	103(7)	139(18)	—	24	20.1	20.3	29.80	44.63
B.41211	Standard ...	121(1)	—	—	—	19.1	—	31.97	—
B.4744	Standard ...	—	168(20)	—	—	—	20.5	—	61.32
B.54243	B.4145 x B.4098	126(6)	144(18)	—	4	20.2	21.1	36.38	52.72
B.54253	B.42304 x B.45151	143(5)	158(15)	—	—	20.0	21.8	28.13	54.35
B.54262	B.4362 x B.4098	147(6)	149(10)	—	12	18.7	20.6	39.36	58.57
GROUP X									
B.37161	Standard ...	87(4)	155(9)	—	16	20.2	21.2	24.77	36.12
B.41211	Standard ...	97(3)	177(21)	—	1	18.8	22.8	24.48	48.33
B.4744	Standard ...	144(2)	153(12)	—	—	21.1	21.2	33.70	55.47
B.54277	B.44341 x B.3337	146(4)	180(13)	—	7	20.3	23.1	31.68	48.59
B.54281	B.45170 x P.O.J.2878 ...	136(6)	156(12)	—	—	19.4	21.6	23.52	43.26

(vii) PROGRESS WITH SEEDLINGS OF THE B.53' SERIES

The seedlings of this series were cut as first ratoons in Second Year Seedling Trials at the high rainfall stations, Guinea and Henley. At Guinea, all plots were cut and weighed, as the plant cane crop had been heavily damaged by rats. Rat damage in the ratoon crop was much less. Three new seedlings were selected, two of which will be tried in Barbados along with seedlings of the B.54' Series. Cuttings of these three seedlings will also be sent to contributing countries along with the seedlings of the B.54' Series.

The performances of the selected seedlings along with those of the standard varieties are given in Tables VI and VII.

TABLE VI

Second Year Seedling Trials — First Ratoons — B.53' Series

Guinea — Cut — 12th — 16th April, 1956

SEEDLING	PARENTAGE	No. of Canes (Rotten)	% Harrowing	Z.H.R. Brix	Tons Cane per Acre
GROUP I					
B.37161 ...	Standard ...	110(11)	16	21.0	43.00
B.4744 ...	Standard ...	146(14)	3	20.0	61.06
B.5319 ...	B.3439 x B.45151	168(8)	13	23.5	41.88
GROUP II					
B.37161 ...	Standard ...	166(17)	—	21.8	48.07
B.4744 ...	Standard ...	163(9)	—	21.2	51.08
B.5321 ...	B.3439 x B.45151	154(8)	—	22.0	45.15
B.5336 ...	B.34102 x B.3337 ...	155(12)	20	21.8	41.19
GROUP III					
B.37161 ...	Standard ...	121(9)	4	20.2	45.58
B.4744 ...	Standard ...	139(19)	2	20.5	51.08
B.5352 ...	B.35207 x P.O.J.2878	218(2)	6	18.8	53.06
B.5387 ...	B.37172 x B.42231	122(22)	35	19.8	40.68
GROUP IV					
B.37161 ...	Standard ...	118(16)	7	20.8	44.63
B.4744 ...	Standard ...	141(15)	—	20.4	47.13
B.5398 ...	B.39157 x B.4098 ...	142(13)	9	20.4	50.83
B.53122 ...	B.45151 x B.4098	170(11)	4	20.4	53.23
GROUP VI					
B.37161 ...	Standard ...	134(22)	1	21.1	44.29
B.4744 ...	Standard ...	216(11)	0	21.3	59.43
B.53160 ...	B.43253 x B.4098 ...	143(6)	1	22.3	45.41
B.53164 ...	B.43283 x B.41227	164(9)	—	22.4	51.94
B.53165 ...	„ x „	186(14)	—	20.5	49.53
GROUP VII					
B.37161 ...	Standard ...	118(6)	6	21.8	40.94
B.4744 ...	Standard ...	180(11)	—	21.2	50.74
B.53200 ...	Co.421 x B.41211	166(13)	15	21.3	38.01

TABLE VII

*Second Year Seedling Trials — First Ratoons — B.53' Series**Henley — Cut — 15th — 17th March, 1956*

SEEDLING	PARENTAGE	No. of Canes (Rotten)	% Arrowing	Z.H.R. Brix	Tons Cane per Acre
GROUP VIII					
B.37161 ...	Standard ...	117(7)	11	21.7	37.75
B.4744 ...	Standard ...	146(7)	—	21.8	44.72
B.53218 ...	B.3439 x B.45151	160(9)	22	22.5	46.87
B.53227 ...	B.37161 x B.4098	147(8)	—	20.7	45.32
GROUP IX					
B.37161 ...	Standard ...	97(8)	9	21.6	38.27
B.4744 ...	Standard ...	167(7)	—	22.2	48.50
B.53261 ...	B.4362 x B.4098	120(5)	34	22.5	38.82
B.53267 ...	B.4362 x P.O.J.2878	187(12)	1	21.8	43.77
GROUP XI					
B.37161 ...	Standard ...	124(9)	6	22.1	39.39
B.4744 ...	Standard ...	158(10)	1	21.1	52.55
B.53313 ...	B.35207 x P.O.J.2878	142(8)	17	21.0	36.46
B.53317 ...	B.37172 x B.4098 ...	188(12)	—	22.3	51.26
B.53320 ...	B.39157 x B.4098 ...	102(8)	—	21.5	29.58
B.53329 ...	B.4145 x B.4098 ...	149(3)	—	22.5	41.28
GROUP XII					
B.37161 ...	Standard ...	131(7)	7	21.9	33.63
B.4744 ...	Standard ...	168(15)	—	21.2	49.97
B.53348 ...	B.4362 x B.4098 ...	175(14)	3	23.5	38.36
B.53355 ...	B.4502 x B.45151	135(4)	1	22.5	33.97
B.53362 ...	Co.421 x B.41211	204(4)	3	21.7	55.04
GROUP XIII					
B.37161 ...	Standard ...	112(9)	14	22.0	39.30
B.4744 ...	Standard ...	157(6)	1	21.9	54.70
B.53365 ...	Co.421 x B.41211	166(8)	20	23.0	37.50

(viii) PROGRESS WITH SEEDLINGS OF THE B.52' AND EARLIER SERIES

THIRD YEAR AND SELECT SEEDLING TRIALS

A. The Seedlings Tested

1. Third Year Seedling Trials

Plant Canes:— B.5126, B.5213, B.5235, B.52107, B.52144, B.52158, B.52162, B.52214, B.52222, B.52256, B.52298, B.52306, B.52321, B.52341 and B.52371.

First Ratoons:— B.5124, B.5143, B.51116, B.51129, B.51156, B.51167, B.51168, B.51183, B.51190, B.51192, B.51211, B.51259, B.51311, B.51321, B.51353 and B.51355.

Second Ratoons:— B.49119, B.5011, B.5028, B.5037, B.5047, B.5098, B.50109, B.50112, B.50115, B.50153, B.50166, B.50210, B.50267, B.50268, B.50275, B.50311, B.50347 and B.50377.

2. Select Seedling Trials

Plant Canes.:— B.37161, B.45151, B.4744 and B.47258.

Second Ratoons:— B. 37161, B.4744, B.47380, B.47419 and B.49119.

Third Ratoons:— B.37161, B.41211, B.45151, B.4744 and B.47419.

B. An Ecological Classification of the Trials

This classification was proposed by Turner after a study of the sugar cane soils of the British West Indian Colonies, and is as follows:—

Group I:— Soils with a natural tilth and free natural drainage which require neither to be ploughed nor drained.

Group II.— Soils with a tilth that can be improved by ploughing, but which do not require to be drained.

(a) LOW RAINFALL AREAS

Third Year Seedling Trials

Plant Canes	...	...	...	...	...	Hope
First Ratoons	...	...	...	...	...	Mangrove
Second Ratoons	...	...	...	...	...	Bromefield

(b) INTERMEDIATE RAINFALL AREAS

Third Year Seedling Trials

Plant Canes	...	...	...	...	Searles & Neils
First Ratoons	...	...	...	...	Foursquare & Ridge
Second Ratoons	...	...	...	...	Belle

Select Seedling Trials

Plant Canes	...	...	...	...	...	Bennetts & Halton
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(c) HIGH RAINFALL AREAS

Third Year Seedling Trials

Plant Canes	...	...	...	...	...	Guinea & Applewhaites
First Ratoons	...	...	...	...	...	Orange Hill & Hothersal
Second Ratoons	...	...	...	...	...	Wakefield.

Select Seedling Trials

Plant Canes	...	...	...	...	Cottage & Castle
Second Ratoons	...	...	...	...	Drax Hall
Third Ratoons	...	...	...	...	Bowmanston.

Group III:— Soils which require to be drained but are preferably left unploughed.

Group IV:— Soils with a poor natural tilth, in which a tilth can be created by ploughing, but which require an elaborate system of drainage to maintain their tilth.

(b) INTERMEDIATE RAINFALL AREAS

Third Year Seedling Trials

Plant Canes	...	...	...	...	Boarded Hall
First Ratoons	...	...	...	...	Boarded Hall
Second Ratoons	...	...	...	...	Carrington.

Select Seedling Trials

Plant Canes	...	...	...	...	Buttals.
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C. RAINFALL DURING THE SEASONS

TABLE VIII

MONTH						1933—34 to 1952—53	1953—54	1954—55	1955—56
January	...	...	...	...	...	3.10	3.35	4.84	2.49
February	...	...	...	...	...	2.37	2.11	2.50	1.68
March	...	...	...	...	...	1.70	2.04	1.83	0.65
April	...	...	...	...	...	2.22	0.91	4.06	0.62
May	...	...	...	...	...	3.09	2.44	2.28	1.07
June	...	...	...	...	...	4.08	5.28	4.95	7.87
July	...	...	...	...	...	6.49	9.52	4.18	7.13
August	...	...	...	...	...	7.19	8.74	2.84	6.31
September	...	...	...	...	...	7.57	11.15	9.55	10.68
October	...	...	...	...	...	8.15	4.93	12.70	9.78
November	...	...	...	...	...	8.84	10.18	7.80	9.45
December	...	...	...	...	...	4.67	5.53	4.44	4.75
January	...	...	...	...	...	3.05	4.84	2.49	6.29
February	...	...	...	...	...	2.38	2.50	1.68	3.65
March	...	...	...	...	...	1.75	1.83	0.65	1.82
TOTALS	...	...	...	...	...	66.65	75.35	66.79	74.24

From the above table it will be seen that the rainfall for the growing season of the 1956 crop was above average. However, closer examination reveals that after good rains early in January, rainfall was negligible up to the middle of June, and the crops suffered severely. Thereafter, rainfall was good.

On September 22, the island was struck by hurricane Janet, which flattened most of the cane crops and caused considerable damage from broken canes, frayed leaves, etc. The hurricane was accompanied by very little rain, and most of this was received prior to the onset of hurricane winds. After the hurricane, no rainfall was received for about three days, so that all cane crops in the island, with the exception of a small portion in the northern parishes, where the winds were not so severe, were badly scorched by sea blast. The fields took some five to six weeks before they recovered and looked normal again. In the meantime, the damage had already been done, as the cane had been defoliated, and this resulted in very poor juices during the following crop season. In addition, the crops looked heavier than they actually were, and the original estimates of the crop proved to be much too high. A crop of the equivalent of just over 151,000 tons of sugar was made, and when all the adverse conditions through which the crop passed are considered, this was a very satisfactory return.

D. RESULTS OF THE TRIALS

TABLE IX

*Soil Type — Group II(a) — Third Year Seedling Trials — Plant Canes
Hope — Cut — 8th & 9th February, 1956*

VARIETY	Tons Cane per Acre	Z.H.R. Brix	% Sucrose in Juice	Purity	No. of Rotten Canes per Plot
B.37161 ...	34.52	19.4	15.8	88.4	15
B.41211 ...	44.88	18.6	15.2	84.7	7
B.4744 ...	49.13	19.4	17.3	90.6	10
B.5126 ...	38.33	20.9	18.4	90.2	5
B.5213 ...	43.45	18.1	15.5	86.5	16
B.5235 ...	40.86	19.1	16.8	88.9	40
B.52107 ...	40.84	18.6	15.9	87.5	8
B.52144 ...	44.18	19.7	16.0	86.3	15
B.52158 ...	35.30	19.5	16.1	87.4	43
B.52162 ...	37.41	18.5	15.0	85.4	11
B.52214 ...	50.71	18.4	16.5	87.9	18
B.52222 ...	38.17	17.6	14.6	84.6	5
B.52256 ...	36.30	17.7	14.2	81.3	10
B.52298 ...	45.47	19.8	15.5	84.0	8
B.52306 ...	45.92	17.9	14.3	83.8	11
B.52321 ...	38.10	20.9	17.4	90.3	9
B.52341 ...	37.66	18.6	15.4	87.5	15
B.52371 ...	35.24	20.5	18.4	88.7	7

A difference of ± 4.01 tons cane per acre between mean yields may be considered significant.

In this trial, the variety B.52214 gave the heaviest yield of plant cane, and was significantly better than all of the other varieties with the exception of B.4744, B.52306 and B.52298.

In this trial, the varieties B.52214 and B.52298 gave reasonably good juices, but the juice of B.52306 was very poor. The juice of B.4744 was exceptionally good.

Apart from B.41211 and B.52144, none of the other varieties tried was worthy of mention.

TABLE X

*Soil Type — Group II(a) — Third Year Seedling Trials — First Ratoons**Mangrove — Cut 12th and 13th March, 1956*

VARIETY	TONS CANE PER ACRE			Z.H.R. BRIX			% SUCROSE IN JUICE			PURITY			NO. OF ROT- TEN CANES PER PLOT		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B 37161 ...	33.83	22.27	28.05	20.9	20.6	20.8	19.3	18.6	19.0	94.6	93.3	94.0	10	9	10
B.4744 ...	36.46	25.61	31.04	21.7	21.7	21.7	19.4	19.0	19.2	92.1	91.3	91.7	6	12	9
B.5124 ...	28.38	19.75	24.07	21.5	21.8	21.7	19.4	18.9	19.2	91.3	91.2	91.3	14	8	11
B.5143 ...	33.59	24.97	29.28	19.4	19.0	19.2	16.8	16.6	16.7	88.4	88.7	88.6	7	7	7
B.51116 ...	26.52	22.61	24.57	20.0	21.2	20.6	19.6	19.5	19.6	91.8	92.2	92.0	9	9	9
B.51129 ...	31.07	20.13	25.60	21.2	22.5	21.9	20.0	19.8	19.9	90.5	91.6	91.1	6	11	9
B.51156 ...	27.66	24.81	26.24	19.6	20.2	19.9	17.0	17.5	17.3	87.0	87.6	87.3	5	11	8
B.51167 ...	26.93	27.43	27.18	20.2	20.3	20.3	18.5	18.1	18.3	90.9	89.2	90.1	5	9	7
B.51168 ...	32.27	22.91	27.59	20.9	20.3	20.6	19.3	18.5	18.9	92.7	93.4	93.1	7	16	12
B.51183 ...	32.93	30.94	31.99	20.0	20.0	20.0	18.2	18.0	18.1	90.7	90.9	90.8	5	6	6
B.51190 ...	24.62	20.10	22.36	20.3	20.8	20.6	18.3	18.0	18.2	90.5	91.3	90.9	11	11	11
B.51192 ...	28.41	21.99	25.20	19.9	20.7	20.3	18.5	17.9	18.2	90.6	90.4	90.5	5	7	6
B.51211 ...	29.23	19.46	24.35	21.4	21.5	21.5	19.0	19.7	19.4	91.5	93.2	92.4	11	13	12
B.51259 ...	26.91	18.27	22.59	21.5	20.7	21.1	19.3	18.0	18.7	89.4	87.7	88.6	11	15	13
B.51311 ...	33.33	25.03	29.18	20.5	21.1	20.8	18.8	18.5	18.7	90.2	90.7	90.5	2	10	6
B.51321 ...	33.77	24.79	29.28	20.7	20.8	20.8	18.9	18.9	18.9	90.8	89.8	90.3	5	7	6
B 51353 ...	36.88	23.48	30.18	18.7	19.0	18.9	16.8	17.5	17.2	87.2	89.3	88.3	10	11	11
B 51355 ...	33.31	21.97	27.64	19.4	19.4	19.4	17.5	17.1	17.3	88.8	86.9	87.9	5	14	10

A difference of ± 3.45 tons ratoon cane per acre may be considered significant.

In this trial, B.51183 gave the heaviest yield of ratoon cane and significantly outyielded all other varieties. It was followed by B.51167 and B.4744.

B.51129 gave the best juice quality and was closely followed by B.51211 and B.51116. The juice quality of B.51183 was relatively poor. Juice purities were good on the whole and there was relatively little rotten cane.

Taking the mean yields over the two crops, B.51183 has given the heaviest yield of cane followed closely by B.4744 and B.51353. The juices of B.51183 and B.51353 are poor, and these varieties cannot be considered for commercial cultivation.

TABLE XI
Soil Type — Group II(a) — Third Year Seedling Trials — Second Ratons
Bromefield — Cut — 6th and 7th February, 1956

VARIETY	TONS CANE PER ACRE				Z.H.R. BRUX				% SUCROSE IN JUICE				PURITY				No. of ROTTEN CANES PER PLOT	
	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.
B.37161 ...	39.53	34.64	33.50	35.89	18.5	19.1	17.7	18.4	16.7	18.2	14.2	16.4	90.4	91.6	85.0	89.0	11	2
B.4744 ...	49.28	38.30	37.16	41.58	19.2	19.6	17.1	18.6	17.1	17.1	15.4	16.5	90.6	87.0	86.3	88.0	9	5
B.49119 ...	48.41	48.29	47.52	48.07	19.6	20.1	19.4	19.7	17.3	17.4	16.4	17.0	90.4	86.4	87.0	87.9	7	3
B.5011 ...	37.04	36.56	34.54	36.05	20.7	21.3	19.1	20.4	17.9	18.2	16.8	17.6	89.4	84.3	87.3	87.0	18	4
B.5028 ...	42.00	36.79	32.08	36.96	18.9	19.7	16.9	18.5	17.8	18.0	13.2	16.3	90.9	87.4	79.1	85.8	15	2
B.5037 ...	40.38	37.65	37.80	38.61	19.6	20.1	18.8	19.5	17.3	18.8	15.5	17.2	90.8	91.2	89.5	90.5	9	3
B.5047 ...	36.98	32.34	27.65	32.32	19.0	19.6	17.7	18.8	15.5	17.3	15.6	16.1	87.7	84.2	86.2	86.0	11	6
B.5098 ...	44.86	33.69	29.86	36.14	18.2	17.6	17.5	17.8	16.1	15.5	15.6	15.7	88.3	82.6	86.0	85.6	12	5
B.50109 ...	39.23	33.36	33.68	35.42	18.4	19.2	17.2	18.3	16.7	16.9	15.1	16.2	90.9	87.1	85.5	87.8	39	4
B.50112 ...	42.23	40.45	42.45	41.71	19.9	19.2	18.2	19.1	17.3	17.5	14.8	16.5	91.0	87.2	84.7	87.6	9	3
B.50115 ...	39.00	30.76	28.25	32.67	17.8	16.9	15.4	16.7	15.1	14.6	12.6	14.1	86.2	83.6	80.9	83.6	16	7
B.50153 ...	40.11	33.93	32.95	35.66	19.6	20.2	18.7	19.5	17.3	18.1	16.1	17.2	91.0	88.4	87.8	89.1	21	8
B.50166 ...	38.33	32.05	30.81	33.73	17.9	18.9	16.4	17.7	16.7	16.5	12.9	15.4	90.6	88.5	83.5	87.5	11	4
B.50210 ...	41.30	39.39	38.34	39.68	19.1	19.1	17.3	18.5	17.1	17.0	15.4	16.5	88.7	85.6	86.1	86.8	12	3
B.50267 ...	40.73	36.37	29.84	35.65	19.2	18.7	18.2	18.7	16.9	17.3	13.7	16.0	89.8	88.1	83.6	87.2	26	8
B.50268 ...	38.58	36.66	34.88	36.71	18.7	17.9	16.7	17.8	15.3	15.6	13.3	14.7	87.6	86.0	82.1	85.2	45	8
B.50275 ...	45.29	34.68	31.30	37.06	18.9	18.6	18.0	18.5	15.6	16.4	13.8	15.3	88.7	86.0	83.4	86.0	33	6
B.50311 ...	41.73	36.90	31.70	36.78	18.8	18.0	16.5	17.8	16.0	17.0	13.0	15.8	88.7	86.9	79.6	85.1	11	4
B.50347 ...	47.51	38.64	35.62	40.59	18.8	19.0	17.1	18.3	16.2	16.1	14.4	15.6	88.9	85.1	85.1	86.4	10	2
B.50377 ...	38.91	41.18	37.64	39.24	20.8	21.6	18.6	20.3	17.0	18.9	15.5	17.1	89.0	90.0	85.9	88.3	7	2

A difference of ± 4.05 tons second ratoon cane per acre may be considered significant.

In this trial, B.49119 gave the heaviest yield of ratoon cane and significantly outyielded all other varieties. B.50112 gave the second heaviest yield of cane and in turn was significantly better than any of the other varieties.

B.5011 gave the best quality juice followed by B.49119 and B.50153. Juices and juice purities were low but this was expected, as the trial was cut early in the crop season and ripening conditions were poor.

Taking the mean yields over the three crops, B.49119 is outstanding. It is followed by B.50112, B.4744 and B.50347. The juices of B.49119 and B.50112 are satisfactory while that of B.50347 is poor.

TABLE XII

Soil Type — Group II(b) — Third Year Seedling Trials — Plant Canes

Searles — Cut — 27th and 28th February, 1956

Neils — Cut — 23rd and 24th February, 1956

VARIETY	TONS CANE PER ACRE		Z.H.R. BRIX		% SUCROSE IN JUICE		PURITY		NO. OF ROTTEN CANES PER PLOT	
	Searles	Neils	Searles	Neils	Searles	Neils	Searles	Neils	Searles	Neils
B. 37161	34.61	40.14	18.0	16.8	15.5	13.8	89.6	85.0	24	17
B. 41211	38.91	43.61	18.1	17.5	14.7	14.2	84.1	82.9	15	39
B. 4744	42.11	59.34	17.7	17.5	15.4	13.8	88.7	84.9	16	18
B. 5126	29.38	40.57	19.5	18.0	16.6	15.2	88.6	84.7	5	9
B. 5213	36.82	48.77	17.2	15.5	13.2	13.5	83.1	83.0	19	14
B. 5235	34.63	41.72	16.4	16.5	14.6	14.9	86.2	87.1	29	38
B. 52107	37.06	49.66	16.9	16.3	14.4	12.4	85.8	81.4	8	7
B. 52144	37.49	47.78	18.1	17.3	15.0	13.9	87.4	84.2	18	12
B. 52158	33.41	41.27	18.7	17.1	13.5	13.7	80.1	82.4	30	34
B. 52162	37.58	43.90	18.0	16.8	13.7	13.4	84.8	84.0	15	20
B. 52214	47.61	56.38	18.0	16.1	13.9	12.9	84.1	83.7	16	24
B. 52222	34.89	49.68	17.6	16.1	14.2	12.0	84.9	78.3	9	13
B. 52256	33.83	42.51	16.2	15.1	12.0	10.5	75.7	72.1	13	23
B. 52298	45.05	53.61	18.2	16.9	15.9	13.7	87.7	82.6	7	7
B. 52306	40.48	55.90	17.3	15.9	14.2	12.5	84.7	82.4	9	7
B. 52321	35.31	41.59	19.0	18.5	16.7	15.0	90.8	86.4	12	8
B. 52341	37.48	48.36	17.7	16.4	14.7	13.6	87.4	84.1	6	5
B. 52371	31.90	44.00	19.1	17.3	16.9	14.8	88.6	81.1	8	7

A difference of ± 5.69 tons cane per acre at Neils and ± 4.50 tons cane per acre at Searles may be considered significant.

At Searles, B.52214 gave the heaviest yield of plant cane. However, it did not prove to be significantly better than B.52298 and B.4744. The juice quality of B.52214 was poor, while that of B.52298 was satisfactory. Juice purities were low, but this was to be expected when hurricane damage and weather conditions were taken into consideration.

The number of rotten canes found was not excessive, especially when it is remembered that this trial was situated in one of the areas most severely affected by the hurricane.

At Neils, B.4744 gave the heaviest yield of plant cane, outyielding all other varieties with the exception of B.52214 and B.52306. The varieties B52298, B.52222, B.52107, B.5213 and B.52341 also gave good yields of plant cane in this trial.

The juices of all varieties mentioned were poor with the exception of B.52298 and B.52341. The best juice in this trial was given by B.5126, but even this was not exceptional and its cane yields were moderate only.

Juice purities were low as was expected, and rotten canes were not excessive considering the conditions. Some varieties were damaged to some extent by rats and weevil borers.

TABLE XIII

Soil Type — Group II(b) — Third Year Seedling Trials — First Ratoons

Foursquare — Cut — 14th and 15th February, 1956

VARIETY	TONS CANE PER ACRE			Z.H.R. BRIX			% SUCROSE IN JUICE			PURITY			No. of ROT- TEN CANES PER PLOT		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161 ...	50.14	20.63	35.44	19.7	20.8	20.3	18.2	17.4	17.8	92.6	90.6	91.6	8	7	8
B.4744 ...	55.69	24.97	40.33	22.3	21.0	21.7	19.7	19.0	19.4	92.2	91.1	91.7	10	12	11
B.5124 ...	51.32	23.00	37.16	21.7	22.1	21.9	20.4	18.4	19.4	92.4	90.2	91.3	7	23	15
B.5143 ...	52.10	23.68	37.89	19.0	19.6	19.3	17.3	15.4	16.4	89.3	84.6	87.0	13	17	15
B.51116 ...	44.73	26.32	35.53	20.9	21.7	21.3	20.5	19.3	19.9	92.1	90.2	91.2	18	9	14
B.51129 ...	44.07	25.17	34.62	22.3	22.3	22.3	20.9	19.7	20.3	93.1	91.5	92.3	14	13	14
B.51156 ...	40.43	21.56	31.00	19.6	20.4	20.0	15.8	17.1	16.5	84.0	86.4	85.2	6	23	15
B.51167 ...	47.51	29.77	38.64	19.3	20.4	19.9	18.2	17.4	17.8	91.1	88.7	89.9	9	13	11
B.51168 ...	51.00	24.24	37.62	20.3	19.8	20.1	18.7	17.2	18.0	92.0	90.6	91.3	13	18	16
B.51183 ...	46.11	28.73	37.42	20.3	20.2	20.3	18.4	17.8	18.1	90.4	88.4	89.4	7	4	6
B.51190 ...	41.63	21.76	31.70	21.4	21.0	21.2	19.4	18.6	19.0	91.2	91.2	91.2	9	8	9
B.51192 ...	43.29	20.25	31.77	20.6	20.6	20.6	17.8	16.2	17.0	90.3	88.0	89.2	12	47	30
B.51211 ...	41.72	21.06	31.39	20.6	21.5	21.1	20.0	18.9	19.5	94.0	90.6	92.3	15	20	18
B.51259 ...	44.74	27.24	35.99	21.2	21.7	21.5	18.5	17.6	18.1	87.3	85.4	86.4	17	12	15
B.51311 ...	49.76	27.37	38.57	20.9	20.5	20.7	19.2	18.2	18.7	91.6	90.4	91.0	8	10	9
B.51321 ...	52.24	24.46	38.35	21.4	21.2	21.3	19.7	18.6	19.2	92.3	88.4	90.4	11	7	9
B.51353 ...	55.82	28.03	41.93	19.5	20.3	19.9	15.7	17.6	16.7	84.8	87.9	86.4	11	7	9
B.51355 ...	59.12	29.44	44.28	18.9	19.8	19.4	17.6	17.5	17.6	88.2	87.5	87.9	12	18	15

Differences between mean yields of ratoon cane are insignificant.

At Foursquare, B.51167 gave the heaviest yield of ratoon cane followed by B.51355, B.51183, B.51311 and B.51259. No significant differences can be shown between the mean yields of any of the varieties.

This trial was unfortunately burnt in a large fire which destroyed over 100 acres of young plant and ratoon canes and trash. These crops were burnt early in June when they had already made considerable growth and when the weather was very dry, so that the crops received a severe check, and had to be heavily supplied. A further setback was received from the hurricane. Under these conditions the cane yields and juice quality must be considered satisfactory.

Taking the mean yields over the two crops, B.51355 has given the heaviest yield of cane followed by B.51353 and B.4744. The juices of B.51353 and B.51355 are so poor that they cannot be considered for commercial cultivation.

TABLE XIV

Soil Type — Group II(b) — Third Year Seedling Trials — First Ratoons

Ridge — Cut — 25th and 28th February, 1956

VARIETY	TONS CANE PER ACRE			Z.H.R. BRIX			% SUCROSE IN JUICE			PURITY			No. of ROT- TEN CANES PER PLOT		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161 ...	39.19	28.12	33.66	20.3	20.4	20.4	18.5	18.5	18.5	90.8	93.1	92.0	6	12	9
B.4744 ...	52.45	26.79	39.62	20.9	21.0	21.0	18.3	19.1	18.7	89.6	93.1	91.4	6	15	11
B.5124 ...	43.60	22.52	33.06	21.9	21.4	21.7	19.1	19.1	19.1	91.5	91.8	91.7	4	18	11
B.5143 ...	41.11	24.37	32.74	19.5	19.3	19.4	16.7	16.8	16.8	86.2	87.9	87.1	4	7	6
B.51116 ...	39.86	26.99	33.43	20.1	21.4	20.8	19.0	19.5	19.3	90.2	92.6	91.4	19	25	22
B.51129 ...	44.75	25.00	34.88	21.6	21.2	21.4	19.9	19.5	19.7	91.3	93.3	92.3	9	19	14
B.51156 ...	46.80	25.14	35.97	19.6	20.1	19.9	17.2	18.5	17.9	85.4	90.3	87.9	9	26	18
B.51167 ...	42.34	22.64	32.49	18.5	20.3	19.4	17.5	18.2	17.9	88.8	90.6	89.7	34	15	25
B.51168 ...	47.11	23.71	35.41	19.2	20.3	19.8	18.6	18.7	18.7	91.3	93.1	92.2	9	19	14
B.51183 ...	47.11	28.44	37.78	19.7	19.6	19.7	17.2	18.3	17.8	85.0	91.0	88.0	8	9	9
B.51190 ...	37.50	21.94	29.72	20.7	21.5	21.1	18.9	18.5	18.7	90.5	92.1	91.3	6	19	13
B.51192 ...	40.17	26.75	33.46	20.3	21.4	20.9	17.8	18.3	18.1	88.1	91.4	89.8	11	14	13
B.51211 ...	37.18	21.45	29.32	21.2	21.3	21.3	18.9	19.9	19.4	89.9	93.1	91.5	8	19	14
B.51259 ...	43.67	23.68	33.68	21.5	21.1	21.3	18.0	17.6	17.8	84.7	87.3	86.0	20	37	29
B.51311 ...	37.53	30.47	34.00	20.4	20.9	20.7	19.0	19.2	19.1	92.9	91.9	92.4	5	13	9
B.51321 ...	42.88	23.17	33.03	20.6	21.6	21.1	19.1	20.4	19.8	89.5	92.2	90.9	5	12	9
B.51353 ...	50.73	27.90	39.32	19.1	19.2	19.2	17.2	18.0	17.6	86.8	90.6	88.7	5	18	12
B.51355 ...	50.02	27.34	38.68	18.8	19.7	19.3	15.7	17.5	16.6	82.9	89.8	86.4	5	15	10

A difference of ± 2.86 tons ratoon cane per acre may be considered significant.

At Ridge, B.51311 gave the heaviest yield of ratoon cane and significantly outyielded all of the other varieties, with the exception of B.51183, B.37161 and B.51353.

The juice quality of B.51311 was very good, but those of B.51183 and B.51353 were poor.

Taking the mean yields over the two trials, B.4744 has given the heaviest yield of cane closely followed by B.51353, B.51355 and B.51156. The juices of the three last mentioned are poor.

Generally speaking, juices and juice purities were satisfactory, when prevailing weather conditions are considered, and there were relatively few rotten canes.

TABLE XV
Soil Type — Group II(b) — Third Year Seedling Trials — Second Ratooms
Belle — Cut — 23rd and 24th April, 1956

VARIETY	TONS CANE PER ACRE			Z.H.R. BRIX			% SUCROSE IN JUICE				PURITY				No. of ROTTEN CANES PER PLOT		
	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Mean
B.37161 ...	40.84	24.10	27.37	30.77	20.4	22.0	21.1	21.2	18.7	18.8	18.6	18.7	89.7	88.0	92.4	90.0	14
B.4744 ...	47.38	29.91	29.70	35.66	21.3	22.5	22.2	22.0	18.0	19.2	19.9	19.0	87.7	85.8	91.2	88.2	19
B.49119 ...	49.24	40.15	37.76	42.38	21.3	22.4	22.1	21.9	19.2	19.4	19.7	19.4	89.2	85.8	90.3	88.4	11
B.5011 ...	38.33	25.22	25.91	29.82	21.5	22.9	22.1	22.2	18.9	19.3	19.4	19.2	87.7	82.6	89.4	86.6	12
B.5028 ...	36.78	25.48	27.65	29.97	21.1	22.9	21.9	22.0	18.5	17.4	19.4	18.4	88.0	79.4	90.8	86.1	17
B.5037 ...	42.79	24.75	28.71	32.08	20.9	23.5	22.4	22.3	19.1	21.3	20.7	20.4	89.3	89.5	93.9	90.9	16
B.5047 ...	39.27	19.92	22.98	27.39	20.4	22.6	22.1	21.7	18.0	19.1	18.6	18.6	87.3	83.7	91.8	87.6	15
B.5098 ...	40.06	25.07	24.99	30.04	19.6	20.3	20.2	20.0	16.8	16.8	18.6	17.4	84.8	79.3	90.1	84.7	13
B.50109 ...	36.02	16.07	24.36	25.48	20.1	23.3	21.7	21.7	18.4	21.1	19.1	19.5	89.7	86.2	92.5	89.5	60
B.50112 ...	43.07	27.46	33.89	34.81	21.1	22.2	22.5	21.9	18.3	19.7	19.8	19.3	88.0	87.4	92.5	89.3	15
B.50115 ...	41.26	22.72	21.21	28.40	18.5	20.1	19.1	19.2	15.5	17.2	17.1	16.6	84.5	85.1	89.9	86.5	13
B.50153 ...	40.34	23.15	30.50	31.33	21.2	22.4	21.9	21.8	19.7	19.5	20.5	19.9	91.4	85.1	92.5	89.7	30
B.50166 ...	40.59	25.76	24.34	30.23	20.3	22.9	20.8	21.3	17.9	19.5	18.3	18.6	89.2	87.4	91.8	89.5	19
B.50210 ...	40.95	26.93	27.49	31.77	20.1	21.8	20.1	20.7	17.9	18.6	18.5	18.3	87.6	84.4	89.1	87.0	10
B.50267 ...	42.79	15.23	20.75	26.26	21.8	22.5	22.2	22.2	18.7	18.9	19.6	19.1	89.1	86.3	92.3	89.2	11
B.50268 ...	38.91	22.19	27.95	29.68	20.6	21.8	20.6	21.0	17.1	18.6	18.1	17.9	87.0	85.7	91.3	88.0	91
B.50275 ...	38.01	18.28	17.12	24.47	21.4	22.0	21.7	21.7	19.0	18.5	19.9	19.1	90.5	84.2	94.3	89.7	28
B.50311 ...	42.98	26.08	25.65	31.57	20.5	21.9	21.2	21.2	17.7	19.4	19.2	18.8	88.6	86.2	92.7	89.2	11
B.50347 ...	46.02	29.19	34.97	36.73	20.3	20.9	20.3	20.5	17.0	16.1	18.2	17.1	84.9	78.7	89.6	84.4	13
B.50377 ...	37.64	28.95	30.82	32.47	21.5	24.9	22.9	23.1	20.5	22.0	21.1	21.2	91.5	89.4	93.5	91.5	19

A difference of ± 4.20 tons second ratoon cane per acre may be considered significant.

In this trial, B.49119 gave the heaviest yield of second ratoon cane, significantly outyielding all other varieties with the exception of B.50347 and B.50112.

The juice quality of B.50347 is poor, while those of B.49119 and B.50112 are satisfactory. The variety B.50377 has an outstanding juice and gave a reasonably good yield of cane. However, it flowers too heavily to be acceptable as a commercial variety in Barbados.

Taking the mean yields over the three crops, B.49119 has been outstanding, outyielding all other varieties by a wide margin. B.50347 has given the second heaviest yield of cane followed closely by B.4744 and B.50112. The juice quality of B.50112 is satisfactory and it flowers very sparingly, so that it may be a useful commercial variety in those areas where flowering is a limiting factor.

TABLE XVI

*Soil Type — Group II(b) — Select Seedling Trials — Plant Canes
Bennetts — Cut — 22nd February, 1956*

VARIETY	Tons Cane per Acre	Tons Sugar per Acre	% Sucrose in Cane	Purity	No. of Rotten Canes per Plot
B. 37161 ...	39.16	4.02	11.6	88.8	39
B. 45151 ...	43.78	5.11	12.9	90.8	88
B. 4744 ...	52.06	5.84	12.5	89.4	70
B. 47258 ...	39.02	4.47	12.9	88.9	49

Differences of ± 3.01 tons cane per acre and ± 0.31 tons sugar per acre may be considered significant.

In this trial, B.4744 gave the heaviest yield of plant cane and sugar, greatly and significantly outyielding all other varieties. B.45151 gave the second heaviest yield of cane and sugar and significantly outyielded B.37161 and B.47258. B.37161 gave a slightly heavier yield of cane than B.47258, but the differences between the mean yields cannot be shown to be significant. However, on account of its superior sugar content, B.47258 significantly outyielded B.37161 on sugar.

B.47258 and B.45151 gave the richest juice quality as judged by the sucrose per cent cane, and B.37161 the poorest. B.45151 had the best purity, but all juice purities were satisfactory. B.45151 and B.4744 had the highest number of rotten canes, mainly due to rat damage.

TABLE XVII

*Soil Type — Group II(b) — Select Seedling Trials — Plant Canes
Halton — Cut — 6th March, 1956*

VARIETY	Tons Cane per Acre	Tons Sugar per Acre	% Sucrose in Cane	Purity	No. of Rotten Canes per Plot
B. 37161 ...	51.28	5.77	12.7	88.5	42
B. 45151 ...	49.59	5.39	12.6	86.4	163
B. 4744 ...	65.55	6.97	12.3	86.5	54
B. 47258 ...	46.25	4.90	12.4	85.4	75

Differences of ± 5.33 tons cane per acre and ± 0.56 tons sugar per acre may be considered significant.

In this trial, B.4744 again gave the heaviest yield of plant cane and sugar, greatly and significantly outyielding all other varieties. B.37161 gave the next heaviest yield of plant cane and sugar, but was not significantly better than B.45151 and B.47258 on cane, though outyielding B.47258 on sugar.

B.37161 gave the richest juice, proving to be slightly better than B.45151. However, the juices of all varieties were satisfactory. Juice purities were low on the whole, the juice of B.37161 having the best purity.

Rats did considerable damage to the plots in this trial, and B.45151 was by far the worst sufferer in this respect. This probably accounts to some extent for its relatively poor juice quality and purity in this trial.

TABLE XVIII

Soil Type — Group II(c) — Third Year Seedling Trials — Plant Canes

Guinea — Cut — 22nd and 23rd March, 1956

Appelwhaites — Cut — 20th and 21st March, 1956

VARIETY	TONS CANE PER ACRE		Z.H.R. BRIX		% SUCROSE IN JUICE		PURITY		No. OF ROTTEN CANES PER PLOT	
	Guinea	Apple- whaites	Guinea	Apple- whaites	Guinea	Apple- whaites	Guinea	Apple- whaites	Guinea	Apple- whaites
B.37161	40.21	40.67	17.8	17.8	14.3	15.1	86.5	88.2	30	29
B.41227	57.70	55.08	19.2	18.9	16.9	15.4	87.2	85.1	35	63
B.4744 ...	55.85	51.77	18.8	19.5	15.5	17.9	85.4	90.0	31	47
B.5126 ...	46.15	42.82	20.0	19.1	17.2	17.6	86.9	88.6	26	15
B.5213 ...	48.61	48.10	18.0	17.5	15.7	14.7	86.4	85.0	26	33
B.5235 ...	43.24	45.44	18.8	17.3	16.3	15.3	87.5	86.3	39	84
B.52107	50.66	48.23	18.5	18.8	16.3	16.2	88.3	88.2	19	16
B.52144	49.37	48.07	19.0	18.1	15.6	16.2	86.3	88.1	41	42
B.52158	48.37	47.02	18.9	18.7	15.4	14.6	84.1	82.5	70	61
B.52162	54.95	46.73	17.8	18.4	15.2	15.1	85.8	85.9	32	22
B.52214	61.00	57.76	18.2	18.6	15.5	14.9	84.6	84.9	27	45
B.52222	51.77	51.41	17.7	18.0	14.4	17.5	83.1	87.2	26	25
B.52256	48.75	50.76	17.3	17.8	12.4	14.4	75.3	82.8	46	21
B.52298	55.45	54.47	19.3	18.5	16.9	17.6	87.1	89.1	39	23
B.52306	55.22	47.13	18.0	17.2	15.6	15.0	87.6	84.9	19	15
B.52321	41.12	44.46	19.3	19.5	17.5	18.2	89.2	91.1	19	32
B.52341	47.23	44.94	18.0	18.0	14.5	16.6	84.9	88.7	21	24
B.52371	43.46	44.38	18.8	19.5	16.8	18.2	83.7	88.5	16	10

A difference of ± 7.81 tons cane per acre at Guinea and ± 4.54 tons cane per acre at Appelwhaites may be considered significant.

At Guinea, B.52214 gave the heaviest yield of plant cane but was not significantly better than B.41227, B.4744, B.47298, B.52306 and B.52162. The standard variety, B.37161, gave the lowest yield of any of the varieties. The juice of B.52214 in this trial was reasonably good, although it was inclined to be poor in most of the other trials. B.41227 gave a splendid performance, and has an excellent juice. Of the other varieties mentioned, B.52306 had a reasonable juice in this trial, but, like B.52214, the juice quality is usually inclined to be poor. The juice of B.52298 was excellent and juices of B.52162 and B.4744 were satisfactory.

At Applewhaites, B.52214 again gave the heaviest yield of plant cane, and significantly outyielded all other varieties with the exception of B.41227 and B.52298. B.4744, B.52222 and B.52256 also gave plant cane yields of over 50 tons per acre.

The juice of B.52214 was inclined to be low in sucrose in this trial, as also was the juice of B.52256. The juices of B.4744, B.52298 and B.52222 were excellent. Juice purities in both trials were satisfactory considering the weather conditions during the growing period.

Some rat damage was recorded in both of these trials, and this is reflected in the number of rotten canes.

TABLE XIX

Soil Type — Group II(c) — Third Year Seedling Trials — First Ratoons

Orange Hill — Cut — 13th and 14th February, 1956

VARIETY	TONS CANE PER ACRE			Z.H.R. BRIX			% SUCROSE IN JUICE			PURITY			NO. OF ROT- TEN CANES PER PLOT		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161 ...	38.26	35.17	36.72	18.7	17.9	18.3	17.2	15.7	16.5	90.7	91.6	91.2	11	5	8
B.4744 ...	59.81	48.29	54.05	19.2	17.3	18.3	16.0	14.3	15.3	87.7	86.4	87.1	8	6	7
B.5124 ...	52.28	41.14	46.71	19.9	17.8	18.9	18.4	15.3	16.9	89.3	85.4	87.4	10	8	9
B.5143 ...	43.70	34.97	39.34	18.5	17.8	18.2	16.7	14.8	15.8	89.2	85.5	87.4	11	6	9
B.51116 ...	43.97	38.04	41.01	20.0	17.6	18.8	18.8	15.6	17.2	90.8	88.2	89.5	13	12	13
B.51129 ...	44.49	39.24	42.37	19.4	19.0	19.2	17.9	15.9	16.9	89.3	86.7	88.0	9	14	12
B.51156 ...	42.62	32.76	37.69	17.9	16.8	17.4	15.1	14.5	14.8	84.4	85.2	84.8	9	10	20
B.51167 ...	36.66	32.51	34.59	17.5	17.9	17.7	17.2	14.9	16.1	89.4	85.7	87.6	34	7	21
B.51168 ...	45.86	30.33	38.10	18.5	16.9	17.7	17.2	14.0	15.6	90.1	85.7	87.9	21	15	18
B.51183 ...	40.37	38.42	39.40	18.7	17.7	18.2	17.4	15.3	16.4	88.8	87.0	87.9	11	5	8
B.51190 ...	42.78	33.75	38.27	19.0	17.9	18.5	16.7	14.3	15.5	87.3	85.8	86.8	6	7	7
B.51192 ...	40.27	33.90	37.09	18.9	18.6	18.8	16.2	14.5	15.4	89.0	88.2	88.6	6	5	6
B.51211 ...	37.84	36.36	37.10	18.7	18.3	18.5	17.7	15.8	16.8	90.1	88.9	89.5	9	8	9
B.51259 ...	33.68	29.61	31.65	20.4	17.5	19.0	17.9	14.4	16.2	87.5	83.5	85.5	12	30	21
B.51311 ...	44.08	43.77	43.93	19.7	17.7	18.7	17.3	13.8	15.6	89.4	84.1	86.8	7	7	7
B.51321 ...	47.96	36.39	42.18	19.1	18.8	19.0	18.5	16.0	17.3	89.6	88.4	89.0	7	6	7
B.51353 ...	53.69	45.51	49.60	17.4	15.1	16.3	16.3	13.8	15.1	87.3	85.8	86.6	7	8	8
B.51355 ...	51.96	44.72	48.34	16.1	14.9	15.5	16.4	11.6	14.0	91.0	77.5	84.3	7	9	8

A difference of ± 4.02 tons cane per acre may be considered significant.

In this trial, the standard variety, B.4744, gave the heaviest yield of ratoon cane, and significantly outyielded all other varieties with the exception of B.51353 and B.51355. B.51311 and B.5124 also gave quite good yields of ratoon cane.

Considering the mean yields over the two crops, B.4744 has greatly outyielded all other varieties. It was followed by B.51353 and B.51355, both of which have very poor juices. B.5124 and 51311 have good juices, but their yields are not comparable with those of B.4744. None of the other varieties of this series is worthy of mention.

TABLE XX

*Soil Type — Group II(c) — Third Year Seedling Trials — First Ratoons**Hothersal — Cut — 27th and 28th March, 1956*

VARIETY	TONS CANE PER ACRE			Z.H.R. BRIX			% SUCROSE IN JUICE			PURITY			NO. OF ROT- TEN CANES PER PLOT		
	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161 ...	41.76	34.46	38.11	20.8	21.2	21.0	17.8	18.7	18.3	90.9	92.2	91.6	16	18	17
B.4744 ...	55.40	40.02	47.71	21.9	21.0	21.5	18.9	17.9	18.4	89.7	85.9	87.8	16	12	14
B.5124 ...	46.43	35.68	41.06	22.6	21.6	22.1	19.9	18.3	19.1	88.8	85.8	87.3	35	11	23
B.5143 ...	43.45	34.44	38.95	19.6	20.4	20.0	18.2	18.3	18.3	88.6	88.0	88.3	19	18	19
B.51116 ...	40.25	35.66	37.96	22.7	22.5	22.6	20.8	20.5	20.7	90.5	90.8	90.7	28	20	24
B.51129 ...	42.47	34.49	38.48	23.4	22.7	23.1	20.4	20.1	20.3	90.3	89.1	89.7	40	13	27
B.51156 ...	42.95	36.80	39.88	21.0	20.6	20.8	17.2	15.5	16.4	84.8	79.3	82.1	16	9	13
B.51167 ...	35.44	36.36	35.90	20.7	20.4	20.6	18.5	18.7	18.6	90.1	89.8	90.0	51	29	40
B.51168 ...	45.17	41.31	43.24	21.6	20.6	21.1	18.3	18.1	18.2	87.2	88.1	87.7	29	28	29
B.51183 ...	46.50	44.74	45.62	21.5	20.8	21.2	16.0	15.1	15.6	80.2	77.0	78.6	17	6	12
B.51190 ...	41.70	34.77	38.24	20.7	21.5	21.1	18.0	17.9	18.0	88.2	87.8	88.0	23	9	16
B.51192 ...	40.71	34.66	37.69	21.4	21.1	21.3	18.4	17.8	18.1	88.7	88.5	88.6	13	13	13
B.51211 ...	37.35	32.10	34.73	21.3	21.1	21.2	19.7	20.1	19.9	91.3	92.5	91.9	24	16	20
B.51259 ...	38.33	29.46	33.90	22.4	20.7	21.6	18.2	17.5	17.9	83.4	81.5	82.5	28	38	33
B.51311 ...	49.11	44.57	46.84	21.9	21.3	21.6	19.6	18.4	19.0	90.0	88.5	89.3	14	14	14
B.51321 ...	46.63	35.44	41.04	22.0	22.3	22.2	19.6	19.5	19.6	90.7	89.4	90.1	18	11	15
B.51353 ...	55.79	40.08	47.94	20.3	19.1	19.7	15.9	15.2	15.6	82.7	81.6	82.2	11	7	9
B.51355 ...	52.35	39.56	45.96	19.6	17.7	18.7	15.9	15.0	15.5	83.7	81.7	82.7	15	11	13

A difference of ± 6.10 tons cane per acre may be considered significant.

In this trial, B.51183 gave the heaviest yield of ratoon cane followed by B.51311, B.51168, B.51353 and B.4744, all of which yielded over 40 tons of cane per acre. However, the differences between the mean yields of these varieties cannot be shown to be significant. Taking the mean yields over the two crops, B.51353 has given the heaviest yield of cane followed by B.4744, B.51311, B.51355 and B.51183. The juices of B.51353, B.51355 and B.51183 are very poor, while that of B.51311 is very good. However, the yields of B.51311 over the whole series of trials do not suggest that this variety might become a useful commercial variety in any of the ecological areas of Barbados.

TABLE XXI
Soil Type — Group II(c) — Third Year Seedling Trials — Second Ratons
Wakefield — Cut — 2nd and 3rd May, 1956

VARIETY	TONS CANE PER ACRE				Z.H.R. BRIX				% SUCROSE IN JUICE				PURITY				NO. OF ROTTEN CANES PER PLOT			
	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean
B-37161 ...	35.53	38.41	29.72	34.55	17.1	22.4	20.3	19.9	15.8	19.7	17.5	17.7	89.9	89.5	92.0	90.5	48	19	22	30
B-4744 ...	57.87	49.20	37.34	48.14	19.2	22.3	21.7	21.1	16.1	17.7	18.5	17.4	87.2	83.5	93.4	88.0	24	43	19	29
B-49119 ...	49.76	59.73	47.61	52.37	18.7	21.6	20.3	20.2	16.5	18.7	17.9	17.7	87.8	85.6	90.5	88.0	19	25	53	32
B-5011 ...	41.01	42.78	40.79	41.53	19.2	22.3	21.5	21.0	17.1	17.7	18.3	17.7	88.2	77.9	89.3	85.1	24	27	18	23
B-5028 ...	42.41	45.85	35.61	41.29	19.5	23.1	21.0	21.2	16.2	18.1	16.5	16.9	85.5	82.0	86.9	84.8	26	35	26	29
B-5037 ...	44.74	46.10	38.46	43.10	19.2	22.6	22.1	21.3	18.0	19.7	19.1	18.9	91.3	88.2	92.1	90.5	30	30	10	23
B-5047 ...	39.66	34.57	26.42	33.55	18.2	22.0	19.7	20.0	16.2	18.3	16.1	16.9	86.8	81.6	88.1	85.5	30	38	28	32
B-5098 ...	45.45	40.48	21.50	35.81	17.3	21.2	19.5	19.3	15.9	15.9	17.2	16.3	87.2	75.4	89.5	84.0	24	26	16	22
B-50109 ...	44.72	36.97	25.92	35.87	17.3	22.2	18.9	19.5	16.4	20.1	16.6	17.7	90.1	89.6	89.7	89.8	42	48	32	41
B-50112 ...	44.72	46.70	41.28	44.23	16.4	22.1	20.8	19.8	16.5	19.5	17.8	17.9	87.9	86.5	89.1	87.8	34	25	26	28
B-50153 ...	45.13	37.68	18.24	33.68	17.6	20.6	17.5	18.6	15.8	16.7	15.7	16.1	88.3	84.3	88.2	86.9	14	24	17	18
B-50166 ...	39.31	37.73	31.91	36.32	16.5	21.2	19.1	18.9	15.5	19.4	16.4	17.1	89.6	88.9	90.1	89.5	24	45	16	28
B-50210 ...	39.69	40.32	32.85	37.62	17.3	22.1	20.2	19.9	16.9	18.8	17.1	17.6	88.7	83.5	88.0	86.7	13	14	25	17
B-50267 ...	43.12	43.55	27.05	37.91	19.9	23.0	19.6	20.8	17.7	19.3	17.0	18.0	89.0	86.8	89.7	88.5	21	42	15	26
B-50268 ...	44.03	31.87	23.84	33.25	18.6	20.7	19.7	19.7	16.4	16.9	16.1	16.5	88.9	79.7	88.5	85.7	89	80	23	64
B-50275 ...	43.15	36.16	22.21	33.84	18.1	22.1	19.5	19.9	15.7	18.7	16.3	16.9	86.5	88.1	89.4	88.0	37	46	28	37
B-50311 ...	38.13	40.77	28.45	35.78	18.0	23.1	20.9	20.7	17.0	18.4	17.6	17.7	90.3	83.5	90.5	88.1	21	35	23	26
B-50347 ...	49.93	44.63	38.48	44.35	16.8	21.7	19.6	19.4	15.9	18.2	17.0	17.0	86.8	83.8	89.1	86.6	17	19	16	17
B-50377 ...	37.69	39.55	37.88	38.37	19.1	25.1	22.4	22.2	17.7	22.6	19.5	19.9	90.8	90.6	93.1	91.5	14	29	14	19

A difference of ± 5.42 tons cane per acre may be considered significant.

In this trial, B.49119 gave the heaviest yield of second ratoon cane, greatly and significantly outyielding all other varieties. B.50112 gave the next heaviest yield of ratoon cane, followed by B.5011. Taking the mean yields over the three crops, B.49119 has been outstanding, averaging over 4 tons cane per acre more than its nearest rival, B.4744, and this in spite of yielding 8 tons of cane per acre less in the plant cane crop. B.50112 has also given a good yield of cane, particularly in the ratoon crops and has an excellent juice. B.50347 has also given good yields of cane, but its juice quality is too poor to allow it to be recommended for commercial planting.

TABLE XXII

Soil Type — Group II(c) — Select Seedling Trials — Plant Canes

Cottage — Cut — 26th March, 1956

VARIETY	Tons Cane per Acre	Tons Sugar per Acre	% Sucrose in Cane	Purity	No. of Rotten Canes per Plot
B. 37161 ...	45.38	5.56	13.4	91.6	44
B. 45151 ...	43.08	5.67	14.4	91.6	154
B. 4744 ...	54.19	6.99	14.3	90.5	95
B. 47258 ...	40.79	5.59	15.1	90.8	49

Differences of ± 3.18 tons cane per acre and ± 0.54 tons sugar per acre may be considered significant.

In this trial, B.4744 gave the heaviest yield of plant cane and sugar, greatly and significantly outyielding all other varieties. It was followed by B.37161, which significantly outyielded B.47258 on cane. The differences between the mean sugar yields of B.45151, B.47258 and B.37161 were not significant.

B.47258 gave the richest juice, followed by B.45151 and B.41211, while the juices of B.37161 and B.45151 had the highest purities.

Rat and hurricane damage is reflected in the number of rotten canes found, B.45151 being the worst sufferer in this respect.

TABLE XXIII

Soil Type — Group II(c) — Select Seedling Trials — Plant Canes

Castle — Cut — 10th February, 1956

VARIETY	Tons Cane per Acre	Tons Sugar per Acre	% Sucrose in Cane	Purity	No. of Rotten Canes per Plot
B. 37161 ...	40.24	4.23	11.9	88.4	26
B. 45151 ...	54.20	6.33	13.1	89.0	49
B. 4744 ...	60.19	6.31	12.1	86.4	28
B. 47258 ...	50.54	5.60	12.7	87.3	27

Differences of ± 4.50 tons cane per acre and ± 0.88 tons sugar per acre may be considered significant.

In this trial, B.4744 gave the heaviest yield of plant cane, significantly outyielding all other varieties. B.45151 gave the next heaviest yield of cane followed by B.47258. Both of these varieties significantly outyielded B.37161.

B.45151 gave the heaviest yield of sugar, closely followed by B.4744 and B.47258. All of these varieties significantly outyielded B.37161.

The juice of B.45151 was richest in sugar, followed by B.47258 and B.4744. B.45151 also gave juice with the highest purity, but generally speaking, juice purities were satisfactory.

B.45151 was blown over by the hurricane and suffered some damage, but this was not excessive.

TABLE XXIV
Soil Type — Group II(c) — Select Seedling Trials — Second Ratoons
Drax Hall — Cut — 27th April, 1956

VARIETY	TONS CANE PER ACRE				TONS SUGAR PER ACRE				% SUCROSE IN CANE				PURITY				NO. OF ROTTEN CANES PER PLOT			
	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean
B.37161 ...	36.89	27.96	24.41	29.75	4.93	4.02	3.50	4.15	13.4	15.5	15.3	14.7	90.0	91.7	93.7	91.8	28	34	11	24
B.4744 ...	53.49	40.73	31.12	41.78	8.03	5.69	4.68	6.13	15.0	15.8	16.0	15.6	89.8	88.1	94.2	90.7	39	43	111	32
B.47380 ...	35.94	25.63	21.69	27.75	5.35	3.92	3.45	4.24	14.8	16.1	16.8	15.9	90.2	91.7	94.7	92.2	56	91	10	52
B.47419 ...	44.97	33.88	32.86	37.24	6.60	4.89	4.88	5.46	14.6	16.2	16.2	15.7	88.3	89.0	91.9	89.7	40	49	16	35
B.49119 ...	39.41	39.75	28.32	35.83	5.40	5.54	4.05	5.16	13.7	15.4	15.4	14.8	88.6	88.6	93.3	90.2	15	20	20	15

Differences of ± 3.12 tons cane per acre and ± 0.50 tons sugar per acre may be considered significant.

In this trial, B.47419 gave the heaviest yield of second ratoon cane and sugar, closely followed by B.4744, B.49119 and B.37161. Taking the mean yields over the three crops, B.4744 has given the heaviest yield of cane and sugar, followed by B.47419, B.49119 and B.37161. However, B.47380 averaged slightly more sugar than B.37161. B.47380 had the best quality juice followed by B.47419, B.4744 and B.49119. B.47380 had the greatest number of rotten canes, but most of these can be attributed to rat damage.

TABLE XXV
Soil Type — Group II(c) — Select Seedling Trials — Third Ratoons
Boumanston — Cut — 4th May, 1956

VARIETY	TONS CANE PER ACRE					TONS SUGAR PER ACRE					% SUCROSE IN CANE					PURITY					NO. OF ROTTEN CANES PER PLOT				
	Plant Canes	1st Rtns.	2nd Rtns.	3rd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	3rd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	3rd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	3rd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	3rd Rtns.	Mean
B.37161 ...	42.49	45.91	36.98	32.30	39.42	6.71	6.72	5.04	4.88	5.84	15.8	14.6	15.2	16.0	15.4	90.5	91.8	89.7	94.3	91.6	37	29	17	22	26
B.41211 ...	41.59	47.30	38.32	34.20	40.35	6.33	6.51	4.05	4.43	5.33	15.3	13.8	13.3	14.6	14.3	84.2	87.0	79.6	88.7	84.9	55	39	31	41	42
B.45151 ...	44.21	48.46	40.39	37.46	42.63	7.77	7.52	5.54	5.92	6.69	17.6	15.5	15.8	16.6	16.4	91.9	91.5	86.7	95.2	91.3	40	27	15	30	28
B.4744 ...	49.63	49.25	42.23	35.96	44.27	7.91	7.17	5.14	5.42	6.41	15.9	14.6	14.5	16.1	15.3	88.1	90.7	84.4	93.6	89.2	53	37	12	27	32
B.47419 ...	42.42	43.96	35.97	34.58	39.23	7.18	6.62	4.50	5.19	5.87	16.9	15.1	14.8	16.2	15.8	91.1	90.0	84.6	92.7	89.6	51	34	16	27	32

A difference of ± 0.80 tons sugar per acre between mean third ratoon yields may be considered significant.
Differences between mean cane yields cannot be shown to be significant.

In this trial, B.45151 gave the heaviest yield of third ratoon cane and B.37161 the lowest. However, the differences between the mean cane yields cannot be shown to be significant. B.45151 also gave the heaviest yield of sugar and significantly outyielded B.37161 and B.41211.

Taking the mean yields over the four crops, B.4744 has given the heaviest yield of cane followed by B.45151, B.41211 and B.37161. B.45151 has given the heaviest yield of sugar followed by B.4744, B.47419 and B.37161. B.45151 gave the best quality juice, and B.41211 the poorest. However, the juice quality of B.41211 was adversely affected by the fact that rats and weevil borers had done some damage in the plots of this variety, and also the variety was unripe on most occasions when the trials were cut.

Juice purities were satisfactory except in the case of B.41211, where the purity was low.

B.41211 had the largest number of rotten canes, and as rats had caused some damage in the plots, this was expected.

TABLE XXVI

Soil Type — Group IV(b) — Third Year Seedling Trials — Plant Canes

Boarded Hall — Cut — 7th and 8th March, 1956

VARIETY	Tons Cane per Acre	Z.H.R. Brix	% Sucrose in Juice	Purity	No. of Rotten Canes per Plot
B.37161 ...	40.84	18.6	15.6	90.7	20
B.41227 ...	40.51	18.7	15.7	86.5	22
B.4744 ...	50.27	18.2	16.0	88.2	17
B.5126 ...	35.21	19.7	17.5	87.6	7
B.5213 ...	42.78	17.3	15.7	88.4	31
B.5235 ...	39.07	17.6	15.7	88.6	38
B.52107 ...	46.51	18.0	16.0	88.6	8
B.52144 ...	46.81	18.8	15.7	89.2	24
B.52158 ...	37.52	18.5	16.0	86.7	34
B.52162 ...	41.43	17.9	15.1	87.5	22
B.52214 ...	48.50	18.3	15.1	87.2	21
B.52222 ...	35.93	18.4	15.6	88.0	12
B.52256 ...	36.21	16.9	13.6	81.2	16
B.52298 ...	43.41	19.1	15.9	87.6	9
B.52306 ...	45.82	17.6	16.4	90.2	14
B.52321 ...	41.85	18.7	16.8	89.2	13
B.52341 ...	45.26	16.9	16.0	90.1	17
B.52371 ...	33.30	19.8	17.8	87.9	9

A difference of ± 4.94 tons cane per acre may be considered significant.

In this trial, the standard variety, B.4744, gave the heaviest yield of plant cane, significantly outyielding all other varieties with the exception of B.52214, B.52144, B.52107 and B.52306. B.52341, B.52298 and B.5213 also gave quite good yields of plant cane.

B.52371 gave the best quality juice followed by B.5126, B.52321 and B.52306. Juice purities were satisfactory.

TABLE XXVII

*Soil Type — Group IV(b) — Third Year Seedling Trials — First Ratoons**Boarded Hall — Cut — 2nd and 3rd March, 1956*

VARIETY	TONS CANE PER ACRE			Z.H.R. BRIX			% SUCROSE IN JUICE			PURITY			No. of ROT- TEN CANES PER PLOT		
	Plant Canes	1st Rtns.	Mean.	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean	Plant Canes	1st Rtns.	Mean
B.37161 ...	44.65	30.55	37.60	20.0	21.2	20.6	17.8	18.7	18.3	89.5	91.6	90.6	16	16	16
B.4744 ...	58.21	32.74	45.48	20.6	22.4	21.5	18.2	20.6	19.4	87.8	92.4	90.1	20	16	18
B.5124 ...	47.02	27.07	37.05	20.8	22.8	21.8	19.1	20.9	20.0	88.1	93.1	90.6	14	8	11
B.5143 ...	45.34	28.71	37.03	18.8	19.9	19.4	16.4	18.1	17.3	84.4	89.4	86.9	16	12	14
B.51116 ...	45.97	33.79	39.88	20.3	22.2	21.3	18.1	20.6	19.4	87.5	93.4	90.5	23	19	21
B.51129 ...	43.37	29.18	36.28	21.6	22.7	22.2	19.4	20.5	20.0	87.7	91.7	89.7	23	15	19
B.51156 ...	41.76	31.20	36.48	19.1	22.0	20.6	15.8	19.0	17.4	81.9	88.8	85.4	18	18	18
B.51167 ...	19.27	31.32	25.30	17.8	20.9	19.4	15.8	19.5	17.7	85.4	93.3	89.4	245	14	135
B.51168 ...	43.94	25.74	34.84	19.4	21.5	20.5	16.1	19.7	17.9	85.5	89.8	87.7	32	10	21
B.51183 ...	43.20	35.86	44.53	18.6	21.2	19.9	16.4	17.6	17.0	83.4	87.9	85.7	12	10	11
B.51190 ...	40.61	28.68	34.65	19.9	22.0	21.0	16.3	20.7	18.5	82.6	93.2	87.9	11	11	11
B.51192 ...	43.91	30.89	37.40	19.4	22.5	21.0	17.4	20.2	18.8	87.2	92.8	90.0	8	19	14
B.51211 ...	42.63	28.75	35.74	19.7	22.8	21.3	18.4	20.5	19.5	90.1	93.6	91.9	13	25	19
B.51259 ...	39.20	29.32	34.26	20.6	22.0	21.3	17.5	18.4	18.0	82.4	85.5	84.0	18	25	23
B.51311 ...	48.83	35.88	42.36	19.4	22.2	20.8	18.0	20.3	19.2	86.9	91.2	89.1	11	12	12
B.51321 ...	48.47	29.51	38.99	20.5	22.1	21.3	19.5	20.8	20.2	88.8	91.6	90.2	17	14	16
B.51353 ...	57.40	33.76	45.58	17.3	20.3	18.8	14.0	17.3	15.7	79.8	86.1	83.0	8	16	12
B.51355 ...	56.01	32.60	44.31	17.6	19.9	18.8	15.4	18.7	17.1	82.3	90.6	86.5	12	13	13

A difference of ± 3.67 tons cane per acre may be considered significant.

In this trial, B.51311 gave the heaviest yield of ratoon cane, closely followed by B.51183, B.51116, B.51353, B.4744 and B.51355. The differences between the mean yields of these varieties cannot be shown to be significant.

B.5124 gave the best quality juice followed by B.51321, B.51190, B.4744 and B.51116. While the juices of these varieties were quite good, none of them was outstanding. Juice purities were very good on the whole, and there were relatively few rotten canes, especially as this crop had passed through the hurricane.

Taking the mean yields over the two crops, B.51353 has given the heaviest yield of plant cane, closely followed by B.4744, B.51183 and B.51355. Unfortunately, the juices of all three of the varieties of the B.51' Series are very poor, and the other varieties of the B.51' Series are not worthy of mention.

TABLE XXVIII
Soil Type — Group IV(b) — Third Year Seedling Trials — Second Ratons
Carrington — Cut — 25th and 26th April, 1956

VARIETY	TONS CANE PER ACRE				Z.H.R. BRIX				% SUCROSE IN JUICE				PURITY				No. of ROTTEN CANES PER PLOT		
	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.
	Mean	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.	Mean	Plant Canes	1st Rtns.	2nd Rtns.
B.37161 ...	39.25	32.35	24.34	31.98	20.7	20.5	22.4	21.2	19.2	18.6	18.8	18.9	90.9	90.2	92.0	91.0	15	8	10
B.4744 ...	45.09	37.41	25.12	35.87	20.8	22.2	23.2	22.1	18.2	19.3	20.8	19.4	87.7	87.2	92.3	89.1	18	8	11
B.49119 ...	42.51	40.67	24.41	35.86	20.8	21.6	22.8	21.7	18.8	19.6	20.3	19.6	88.6	88.7	91.1	89.5	10	10	12
B.5011 ...	36.15	29.83	22.05	29.34	22.2	22.1	21.8	22.0	19.1	20.2	19.6	19.6	86.5	88.3	89.0	87.9	18	13	17
B.5028 ...	40.85	35.13	26.33	34.10	21.0	21.7	22.1	21.6	19.1	18.9	20.3	19.4	88.4	86.4	90.5	88.4	12	10	7
B.5037 ...	37.30	29.25	21.40	29.32	22.1	23.0	23.6	22.9	19.4	20.9	21.8	20.7	90.3	90.3	92.9	91.2	13	10	7
B.5047 ...	35.98	26.10	19.20	27.09	20.4	21.2	22.0	21.2	18.6	19.0	20.0	19.2	88.1	86.4	89.0	87.8	13	17	10
B.5098 ...	42.34	33.26	22.38	32.66	20.0	20.0	20.9	20.3	17.1	18.0	18.9	18.0	85.2	85.8	91.0	87.3	9	8	10
B.50109 ...	36.36	30.09	25.50	30.65	20.9	21.4	21.9	21.1	19.5	19.1	19.4	19.3	89.9	89.2	91.4	90.2	46	30	36
B.50112 ...	43.68	40.98	34.08	39.58	20.3	21.1	21.9	21.1	19.4	19.7	20.4	19.8	89.2	89.5	91.1	89.9	13	7	5
B.50115 ...	40.58	29.75	17.91	29.41	17.8	17.9	19.0	18.2	14.6	15.6	16.8	15.7	82.7	84.7	87.6	85.0	14	11	23
B.50153 ...	38.26	31.52	26.43	32.07	21.1	21.8	22.5	21.8	19.6	19.6	20.2	19.8	91.2	89.5	92.1	90.9	15	14	7
B.50166 ...	37.56	32.38	29.12	33.02	19.8	19.7	20.1	19.9	18.0	17.2	18.9	18.0	89.8	87.8	91.0	89.5	11	9	24
B.50210 ...	39.94	36.65	22.54	33.04	21.4	20.9	21.1	21.1	18.1	19.3	18.9	18.8	87.4	87.5	89.6	88.2	9	8	21
B.50267 ...	41.12	32.06	21.93	31.70	21.3	21.6	21.8	21.6	18.7	19.2	19.4	19.1	89.1	89.4	91.2	89.9	19	15	16
B.50288 ...	35.82	32.80	28.47	32.36	19.9	20.8	20.6	20.4	17.3	18.3	18.6	18.1	87.1	88.1	90.3	88.5	48	26	13
B.50275 ...	39.73	32.06	22.45	31.75	20.8	20.5	21.4	20.9	18.0	18.4	19.5	18.6	89.0	86.5	91.8	89.1	16	18	15
B.50311 ...	40.40	33.94	22.41	32.25	21.1	21.3	21.8	21.4	18.7	19.5	20.1	19.4	88.8	89.9	91.0	89.9	9	8	10
B.50347 ...	46.26	39.72	34.20	40.06	20.1	20.5	20.7	20.4	16.9	17.5	18.1	17.5	87.4	87.4	90.4	87.9	11	6	12
B.50377 ...	34.06	34.89	30.65	33.20	22.4	21.9	23.3	22.5	20.7	20.9	21.7	21.1	90.0	90.6	93.3	91.3	10	8	11

A difference of ± 5.54 tons cane per acre may be considered significant.

In this trial, B.50347 gave the heaviest yield of ratoon cane, and was significantly better than any of the other varieties tried with the exception of B.50112, B.50377 and B.50166. Unfortunately, the juice quality of B.50347 is poor, and this variety cannot be considered for commercial planting. B.50112 appears to be a powerful ratooner and will be tested further. B.50377 has an excellent juice, but arrows too freely to be of use in Barbados and, in addition, appears to be very high in fibre. B.49119, which performed well in the first two crops, was badly broken by the hurricane. In spite of this, the second ratoon yield was reasonably good.

The juice quality of B.50377 was outstanding. B.5037 also gave a very good juice. The juices of B.49119 and B.50112 were quite satisfactory.

Taking the mean yields over the three crops, B.50347 has given the heaviest yield of cane, followed by B.50112, B.4744 and B.49119. As has been mentioned above, B.50347 cannot be considered for commercial planting on account of its poor juice. Both B.50112 and B.49119 are promising, and will be tested further.

TABLE XXIX

Soil Type — Group IV(b) — Select Seedling Trials — Plant Canes

Buttals — Cut — 9th March, 1956

VARIETY	Tons Cane per Acre	Tons Sugar per Acre	% Sucrose in Juice	Purity	No. of Rotten Canes per Plot
B.37161 ...	37.39	4.15	12.5	88.8	33
B.45151 ...	36.59	4.13	12.8	88.2	41
B.4744 ...	42.07	4.64	12.6	87.5	22
B.47258 ...	37.59	4.17	12.8	86.5	26

A difference of ± 3.59 tons cane per acre may be considered significant. Differences between the mean sugar yields are insignificant.

In this trial, B.4744 gave the heaviest yield of plant cane and significantly outyielded all of the other varieties. The differences between the mean cane yields of the varieties, B.37161, B.45155 and B.47258 cannot be shown to be significant.

B.4744 also gave the heaviest yield of sugar, but it cannot be shown to be significantly better than any of the other varieties tried. B.45151 and B.47258 had the best juices and B.37161 the poorest. Juices on the whole were poor, but juice purities were satisfactory. No doubt, juices were affected by the drought in the early part of the crop season and also by the hurricane. The number of rotten canes found was not excessive.

SUMMARY

In the Third Year Seedling Plant Cane Trials, B.52214, B.52298 and B.52306 have given some very heavy plant cane yields. The juices of the first and last mentioned of these varieties appear to be somewhat poor, but these may prove to be satisfactory under more normal conditions. The juice of B.52298, on the other hand, appears to be fairly good, and this may prove to be a useful commercial variety in Barbados if it ratoons satisfactorily.

None of the seedlings of the B.51' Series appears to show any promise, and they will not be tested further.

In the Third Year Seedling Second Ratoon Trials, B.49119 and B.50112 appear to be the most promising.

B.49119 would appear to be best suited to the low and intermediate rainfall areas where flowering is not a limiting factor. It is a medium width light green cane, which sheds its trash readily, and is an exceptionally powerful ratooner.

B.50112 is a medium to thin cane, and appears to be best suited to the intermediate and high rainfall areas. It is recumbent, flowers sparingly, has a very good juice and is a very powerful ratooner. Its main fault is that it tends to hold its trash somewhat firmly. Planting material of this variety has been heat-treated, and it will be put into Select Seedling Trials during the 1957 planting season.

In the Select Seedling Trials, B.4744 has been outstanding as a plant cane, giving the heaviest yields of cane and in most cases the heaviest yield of sugar as well. However, there are some trials in which B.45151 has outyielded it on sugar. B.45151 has an outstanding juice when it is fully ripe, and is capable of standing until late in the reaping season. It gives a dense canopy, which helps to smother weeds where these are prevalent.

B.47258 has a very good juice, but generally speaking, its plant cane yields have been too low for it to be considered for commercial planting.

In the single Select Seedling Second Ratoon Trial cut, B.4744 was outstanding, giving the heaviest yields of cane and sugar over the three crops. B.47419 and B.49119 gave reasonable yields of cane and sugar in this trial, but the yields of B.47380, which has an excellent juice, were too poor for it to be considered for commercial planting, not even as an early maturing variety.

In the Select Seedling Third Ratoon Trial cut, B.4744 gave the heaviest yield of cane over the three crops, but was outyielded on sugar by B.45151. Both of these varieties are recommended for cultivation in the high rainfall areas.

III. DESPATCH OF SEEDLINGS TO CONTRIBUTING COLONIES

Cuttings of varieties of the B.53' Series were sent to the various contributing colonies in October 1955. The varieties and the colonies to which they were sent are listed below:—

TRINIDAD, BRITISH GUIANA.	B.5321, B.5352, B.5398, B.53122, B.53165,
ANTIGUA & ST. KITTIS	B.53200, B.53227, B.53261, B.53267, B.53317,
	B.53320, B.53329, B.53348, B.53355, B.53362
	and B.53365.

ST. LUCIA	...	...	...	B.49119 and Uba.
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Jamaica received one cutting of each of the selected seedlings of the B.55' Series.

British Guiana received 'fuzz' from forty-six crosses, and Jamaica 'fuzz' from forty-two crosses. These crosses were selected with a view to their progeny carrying resistance to leaf scald and mosaic disease respectively.

In addition to the above, the following varieties were sent to foreign countries:—

MARTINIQUE	...	...	...	B.5321, B.5352, B.5398, B.53122, B.53165, B.53200, B.53218, B.53227, B.53261, B.53267, B.53317, B.53320, B.53329, B.53348, B.53355, B.53362, B.53365, B.46364, B.47225, B.47258, B.47380, B.52277, B.52242 and N.Co.330.
GUADELOUPE	...	...	...	B.5321, B.5352, B.5398, B.53122, B.53165, B.53200, B.53218, B.53227, B.53261, B.53267, B.53317, B.53320, B.53329, B.53348, B.53355, B.53362, B.53365, B.50347, B.51168, B.51311, B.51321, B.51353, B.51355, B.5277, B.52162, B.52184, B.52269, B.52321, B.52371, B.5321, B.5336, B.5387, B.5398, B.53165 and B.53329.
UNITED STATES OF AMERICA				B.39254, B.45184, B.45211, B.45236, B.45266, B.45170, B.50F1, B.50F2, B.50F3, B.50F4 and B.50F5.
ARGENTINA	...	...	...	B.42231 and B.45151.
INDONESIA	...	...	...	B.3337, B.34104, B.37161, B.37172, B.4098, B.41211, B.41227, B.42231, B.4362 and B.45151.
FORMOSA	...	...	...	B.45151.

IV. PERFORMANCE OF VARIETIES IN CONTRIBUTING TERRITORIES

Variety Acreages in the British Caribbean Sugar Territories:

Approximate variety acreages for the 1956 crop, totalled for Jamaica, Trinidad, British Guiana, Barbados, Antigua, St. Kitts and St. Lucia, together with percentage figures for the combined area reaped, were as follows:—

	<i>Acreage</i>	<i>Percentage</i>
B.37161	95,500	28.2
B.41227	65,200	19.3
B.37172	34,200	10.1
B.4362	30,600	9.0
B.4098	25,300	7.5
B.3337	24,500	7.2
B.34104	21,400	6.3
B.42231	13,000	3.8
B.41211	12,100	3.6
B.3439	11,700	3.5
B.4744	5,000	1.5

Conditions in the several territories are different, so that there are remarkable differences between the acreages of these major varieties in cultivation in the individual Colonies. Details for each, together with those for 1955 as a comparison to show the trend of variety changes, are given in the following sections.

Jamaica:

B.41227, B.42231 and B.4362 maintained their popularity and continued to give results superior to those with the older varieties. The former and the latter increased in acreage reaped for the 1956 crop, while B.42231 maintained its former percentage of the crop. Replacement of B.34104 by the newer mosaic-resistant varieties was continued. The figures for variety per cent acreages reaped were as follows:—

					1955	1956
B.41227	...	...	...	...	18	24
B.4362	...	...	...	...	14	18
B.34104	...	...	...	...	16	11
B.42231	...	...	...	...	10	10
B.3439	...	...	...	...	13	9
B.37161	...	...	...	...	8	7
B.37172	...	...	...	...	7	7

Trinidad:

The figures for variety per cent acreages reaped in the 1956 crop show that the newer varieties B.41227 and B.4362 have increased in acreage, largely at the expense of B.3337 and B.37172. Figures for 1955 and 1956 are:—

					1955	1956
B.3337	...	...	...	...	31.5	28.4
B.37172	...	...	...	...	30.8	28.2
B.37161	...	...	...	...	20.6	23.0
B.41227	...	...	...	...	3.6	8.7
B.34104	...	...	...	...	6.8	4.4
B.4362	...	...	...	...	2.7	3.1

Plant cane acreages reaped in 1956 show more clearly the trend of variety changes taking place in Trinidad. These show that B.41227 accounted for no less than 23.5% of the plant canes reaped. The former major estate variety B.3337 occupied less than 12.1% of plant canes reaped, and appears likely to be replaced within a few years.

British Guiana:

Variety per cent acreages for the 1955 and 1956 crops are given below:—

					1955	1956
B.37161	...	...	...	...	30.3	40
B.41227	...	...	...	...	33.6	31
B.4098	...	...	...	...	9.9	8
B.47225	...	...	...	...	1.3	5
B.4362	...	...	...	...	4.4	5
B.34104	...	...	...	...	13.2	3

The features most worthy of note in the variety situation are the virtual elimination of B.34104, which was the major variety of the Colony at the time of the discovery of Leaf Scald Disease in 1950, and the increased plantings of B.37161, which now occupies the greatest acreage.

The most popular of the newer varieties are B.47258, B.46378 and B.47379. An Australian variety, Pindar, is being extended on some properties on account of its handsome appearance, but so far there is insufficient data from properly conducted variety trials to assess its potential value commercially.

Barbados:

Variety percentage figures for the 1957 crop, together with those for the crop reaped in 1956, are given below:—

				1956	1957	Plant Canes 1957
B.37161	...	...	...	64.6	54.5	45.4
B.41211	...	...	...	13.1	15.7	18.6
B.4744	...	...	...	6.7	11.1	15.9
B.4098	...	...	...	8.0	7.9	7.1
B.45151	...	...	...	2.6	5.6	10.4
B.49119	...	...	...	—	0.4	1.1

The trend is for a considerable reduction in the acreage under B.37161, with corresponding increases in the newer varieties, particularly B.41211, B.45151 and B.4744. Figures for plant cane acreages to be cut in 1957 indicate more clearly the popularity of the newer varieties, as shown above. The latest variety to be distributed for planting commercially, B.49119, has continued to uphold its early promise and appears for the first time in the variety census.

B.41211 is confined largely to the low rainfall areas, where suitable ripening conditions usually prevail, while B.45151 is planted mainly in the high-rainfall red soil regions. B.4744 now occupies large areas in the medium and high rainfall areas, while B.49119 is being extended throughout the island. In the lowest-rainfall areas, it is likely that B.37161 will still serve a useful purpose for some years.

Antigua:

Variety per cent figures for the 1957 crop are as follows:—

B.4098	...	...	...	...	...	...	...	93.09
B.37161	...	...	...	...	...	...	...	1.63
B.4744	...	...	...	...	...	...	...	1.03
B.49119	...	...	...	...	...	...	...	0.43
B.34104	...	...	...	...	...	...	...	0.26

B.4098 still dominates the cane acreage, but some of the newer varieties are being multiplied rapidly, as is shown by the following figures for plant cane percentages:—

B.4098	...	...	...	...	...	...	...	88.12
B.4744	...	...	...	...	...	...	...	3.21
B.49119	...	...	...	...	...	...	...	1.34
B.37161	...	...	...	...	...	...	...	1.10
B.41227	...	...	...	...	...	...	...	0.52

St. Kitts:

The main indication from the data is that B.41211 continues to increase in area at the expense of B.37161. Other varieties occupy insignificant areas at present:—

						1955	1956
B.37161	...	...	...	...	...	59.6	50.6
B.41211	...	...	...	...	...	26.2	34.8
B.34104	...	...	...	...	...	5.4	4.8
B.3337	...	...	...	...	...	2.9	2.4
B.41227	...	...	...	...	...	0.9	2.0

St. Lucia:

B.37172, the major variety of the Colony, shows an increase in acreage for the 1957 crop, and B.37161 a small decrease. B.4362 has maintained its acreage at about 12%. Detailed figures for the variety percentages in the 1956 and 1957 crops are as follows:—

						1956	1957
B.37172	...	...	...	...	...	38.1	41.0
B.37161	...	...	...	...	...	35.7	33.8
B.4362	...	...	...	...	...	12.0	12.0
B.H.10(12)	...	...	...	...	...	5.7	5.9
B.4098	...	...	...	...	...	3.9	3.3
B.34104	...	...	...	...	...	1.4	1.4

V. STATEMENT OF EXPENDITURE FOR 1955 — 56

1. Recurrent

1. Personal Emoluments	...	...	...	...	...	\$ 18,607.33
2. Provident Fund	...	...	...	...	...	1,610.40
3. Seedling Trials	...	...	...	...	...	21,956.96
4. Stationery and Library	...	...	...	...	...	820.95
5. Travelling	...	...	...	...	...	3,442.89
6. Entertainment	...	...	...	...	...	83.00
7. Rent of Land	...	...	...	...	...	598.50
8. Incidentals	...	...	...	...	...	943.15
9. Rent of House for Senior Geneticist	...	...	...	...	...	1,590.00
						\$ 49,653.18

2. Non-Recurrent

Irrigation	...	...	...	...	...	\$2,041.74
Arrow Lanterns	...	...	...	...	...	55.40
Motor Lorry	...	...	...	...	...	5,270.00
Visit to Hawaii	...	...	...	...	...	2,500.00
						\$9,867.14
						9,867.14
TOTAL	...	...	...	...	...	\$ 59,520.32

Details of Crosses made, their Germinations, Numbers Potted and Numbers Planted in the Field Nursery
— B.58' Series

CROSS	GROUP	No. Germinated	No. POTTED		No. PLANTED IN FIELD NURSERY	
			Singles	Bunches	Singles	Bunches
<i>S. officinarum</i> x <i>S. spontaneum</i>						
P.O.J.2364 x B.603 ...	3rd Glagah Nobilisation ...	58	58	—	32	—
P.O.J.2364 x B.417 ...	" "					

APPENDIX I (Continued)

CROSS		GROUP	No. Germin- ated	No. POTTED		No. PLANTED IN FIELD NURSERY	
				Singles	Bunches	Singles	Bunches
7161	x C.P.44/155 ...	Noble x Glagah x Local x Chunnee	24	24	—	24	—
7161	x N.Co.310 ...	" x " x " x "	1,050	—	172	—	118
8233	x B.4098 ...	" x " x " x "	160	160	—	157	—
092	x B.41211 ...	" x " x " x "	1,200	—	220	—	200
092	x B.4744 ...	" x " x " x "	20	20	—	14	—
145	x B.4788 ...	" x " x " x "	705	—	141	—	106
2279	x B.3337 ...	" x " x " x "	5,000	180	600	152	184
2279	x B.4098 ...	" x " x " x "	1,010	—	202	—	115
362	x B.4098 ...	" x " x " x "	388	—	97	—	77
362	x Co.419 ...	" x " x " x "	—	—	—	—	—
373	x B.4098 ...	" x " x " x "	—	—	—	—	—
373	x B.42231 ...	" x " x " x "	940	—	188	—	115
373	x B.42231 ...	" x " x " x "	238	238	—	210	—
8330	x Co.290 ...	" x " x " x "	130	130	—	117	—
906	x B.4098 ...	" x " x " x "	1,000	800	50	740	44
9186	x B.4098 ...	" x " x " x "	—	—	—	—	—
9282	x B.34104 ...	" x " x " x "	8	8	—	5	—
011	x B.42231 ...	" x " x " x "	7	7	—	5	—
028	x P.O.J.2878 ...	" x " x " x "	250	250	—	239	—
037	x B.41211 ...	" x " x " x "	3,500	—	600	—	575
037	x B.5121 ...	" x " x " x "	113	113	—	111	—
0126	x B.42231 ...	" x " x " x "	200	200	—	166	—
0215	x B.42231 ...	" x " x " x "	700	700	—	616	—
0352	x P.O.J.2878 ...	" x " x " x "	65	65	—	48	—
142	x B.4098 ...	" x " x " x "	550	350	25	320	19
1131	x B.4098 ...	" x " x " x "	344	—	70	—	57
1167	x B.4098 ...	" x " x " x "	35	35	—	32	—
214	x B.4098 ...	" x " x " x "	500	500	—	454	—
2184	x B.4098 ...	" x " x " x "	40	40	—	34	—
2242	x P.O.J.2878 ...	" x " x " x "	30	30	—	28	—
2389	x B.603 ...	" x " x " x "	—	—	—	—	—
121	x B.4098 ...	" x " x " x "	125	125	—	113	—
121	x N.Co.330 ...	" x " x " x "	231	231	—	122	—
3-819	x B.4098 ...	" x " x " x "	840	—	168	—	129
3-819	x B.4744 ...	" x " x " x "	925	—	185	—	122
2-8560	x B.34104 ...	" x " x " x "	350	—	69	—	23
2-8560	x B.4098 ...	" x " x " x "	1,050	—	200	—	195
34/32	x B.34104 ...	" x " x " x "	120	120	—	96	—
e Cuca	x B.4098 ...	" x " x " x "	20	20	—	18	—
J.2878	x B.34104 ...	" x " x " x "	2,100	287	175	277	175
1000	x B.34104 ...	" x " x " x "	175	175	—	167	—
an	x B.4098 ...	" x " x " x "	600	—	120	—	70
207	x B.52D.24 ...	" x " x " x "	150	150	—	110	—
161	x B.53C.412 ...	" x " x " x "	1,200	300	—	268	—
D.21	x B.52U.12 ...	" x " x " x "	1,000	970	—	900	—
U.13	x B.53C.414 ...	" x " x " x "	600	300	—	224	—
207	x B.53C.414 ...	" x " x " x "	5	5	—	3	—
neite	x B.53C.415 ...	" x " x " x "	6	6	—	3	—
45	x B.50377 ...	Noble x Celebes x Glagah x Local x Chunnee	—	—	—	—	—
349	x B.47320 ...	" x " x " x "	3,000	400	500	361	457
37	x B.43346 ...	" x " x " x "	3,000	—	600	—	538
210	x B.34104 ...	" x " x " x "	1,246	—	178	—	132
uy No. 2	x B.4098 ...	Noble x Glagah x Local x Tukuyu x Chunnee	8	8	—	7	—
45	x B.45109 ...	Noble x Glagah x Celebes x Chunnee	150	150	—	147	—
			48,182	9,241	6,368	7,492	4,877

APPENDIX I (Continued)

CROSS	GROUP	No. Germinated	No. POTTED		No. PLANTED IN FIELD NURSERY	
			Singles	Bunches	Singles	Bunches
B.37226 x B.603 ...	<i>S. officinarum</i> x <i>S. sinense</i> 2nd Nobilisation Sinense	5	5	—	3	—
Ba.11569 x C.P.38/34 ...	<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> x <i>S. sinense</i> Noble x Glagah x Local x Chunnee x Sinense	12	12	—	11	—
B.37172 x B.50340 ...	" x " x " x " ...	—	—	—	—	—
B.39254 x B.4408 ...	" x " x " x " ...	4	4	—	3	—
B.39254 x B.4738 ...	" x " x " x " ...	20	20	—	19	—
B.39254 x B.49119 ...	" x " x " x " ...	200	200	—	195	—
B.39254 x N.Co.310 ...	" x " x " x " ...	108	108	—	93	—
B.44341 x B.41211 ...	" x " x " x " ...	33	33	—	26	—
B.44241 x B.45151 ...	" x " x " x " ...	40	40	—	36	—
B.44341 x H.32-1063 ...	" x " x " x " ...	10	10	—	3	—
B.47329 x B.47419 ...	" x " x " x " ...	70	70	—	61	—
B.51259 x B.4098 ...	" x " x " x " ...	2,100	600	256	455	240
H.32-8560 x B.45151 ...	" x " x " x " ...	2,480	200	400	157	330
M.134/32 x B.45151 ...	" x " x " x " ...	640	—	128	—	125
B.39254 x B.34104 ...	Noble x Local x Chunnee x Sinense	59	59	—	46	—
		5,776	1,356	784	1,105	695
B.39254 x B.37193 ...	<i>S. officinarum</i> x <i>S. barberi</i> x <i>S. sinense</i> Noble x Chunnee x Sinense ...	160	160	—	105	—
B.47183 x B.603 ...	<i>S. officinarum</i> x <i>S. sinense</i> x <i>S. spontaneum</i> Noble x Celebes x Sinense ...	60	60	—	45	—
B.47155 x B.603 ...	<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. robustum</i> Noble x Celebes x Robustum ...	50	50	—	37	—
B.4145 x B.44234 ...	Noble x Glagah x Robustum	—	—	—	—	—
		50	50	—	37	—
B.37161 x H.37-1933 ...	<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> x <i>S. robustum</i> Noble x Glagah x Chunnee x Robustum	522	—	87	—	—
B.4362 x H.37-1933 ...	" x " x " x " ...	1,000	300	120	285	115
B.49388 x B.47419 ...	Noble x Glagah x Local x Chunnee x Robustum	3,000	—	500	—	444
		4,522	300	707	285	559
B.48306 x B.603 ...	<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. sinense</i> x <i>S. robustum</i> Noble x Glagah x Sinense x Robustum	1,000	—	200	—	140

APPENDIX I (Concluded)

CROSS	GROUP	No. Germi- nated	No. POTTED		No. PLANTED IN FIELD NURSERY	
			Singles	Bunches	Singles	Bunches
45152 x H.37-1933 ...	<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> x <i>S. sinense</i> x <i>S. robustum</i> Noble x Glagah x Local x Chunnee x Sinense x Robustum 	150	150	—	112	—
	GRAND TOTALS ...	62,532	13,124	8,214	10,579	6,413

APPENDIX II

SUGAR CANE FIRST YEAR SEEDLINGS — B.57' SERIES

List of Crosses and Number of Seedlings of Each Planted in the Field Nursery (May 1955) and in the First Year Seedling Trial (October 1955)

CROSS	GROUP	No. PLANTED IN THE FIELD NURSERY		No. Planted in the First Year Seedling Trial
		Singles	Bunches	
<i>S. officinarum x S. spontaneum</i>				
B.49282 x B.603 ...	3rd Nobilisation Glagah ...	11	—	—
Ba.11569 x Co.270 ...	3rd Nobilisation Local ...	17	—	5
Ba.11569 x B.5126 ...	Noble x Local x Glagah ...	4	—	4
B.37172 x B.41211 ...	" x " x " ...	38	—	17
B.4145 x B.41211 ...	" x " x " ...	180	5	65
Co.421 x B.41211 ...	" x " x " ...	587	755	272
B.47179 x P.O.J.2878	Noble x Glagah x Celebes	84	—	25
B.37172 x B.46364 ...	" x " x " ...	38	—	16
B.43349 x B.5301 ...	Noble x Glagah x Local x Celebes ...	156	—	73
Co.421 x B.39156 ...	" x " x " ...	165	266	61
		1 280	1,026	538
<i>S. officinarum x S. spontaneum x S. barberi</i>				
B.35207 x P.O.J.2878	Noble x Glagah x Chunnee	574	—	163
B.37161 x P.O.J.2878	" x " x " ...	30	—	11
B.4362 x B.39220 ...	" x " x " ...	60	22	41
B.50184 x B.46136 ...	" x " x " ...	65	—	31
Ba.11569 x Co.313 ...	Noble x Local x Chunnee	38	—	12
B.3365 x Co.331 ...	" x " x " ...	222	13	37
Co.413 x Ba.6032 ...	" x " x " ...	18	—	8
Ba.11569 x N.Co.310 ...	Noble x Local x Glagah x Chunnee	62	—	27
Ba.11569 x C.P.44/55 ...	" x " x " ...	17	—	8
B.3365 x B.4738 ...	" x " x " ...	136	—	49
B.35207 x N.Co.330 ...	" x " x " ...	5	—	3
B.37161 x B.4098 ...	" x " x " ...	55	—	26
B.40105 x P.O.J.2878	" x " x " ...	27	—	14
B.40105 x B.46136 ...	" x " x " ...	6	—	3
B.4362 x B.4098 ...	" x " x " ...	237	—	72
B.4362 x B.41227 ...	" x " x " ...	170	—	45
B.4362 x B.43235 ...	" x " x " ...	24	—	13
B.4362 x B.51321 ...	" x " x " ...	124	—	28
B.4362 x Co.419 ...	" x " x " ...	77	—	20
B.4362 x C.P.33/224 ...	" x " x " ...	80	102	57
B.4373 x B.49119 ...	" x " x " ...	124	5	48
B.4596 x B.4744 ...	" x " x " ...	45	—	11
B.45170 x B.4098 ...	" x " x " ...	159	179	82
B.45170 x B.47419 ...	" x " x " ...	87	170	61
B.45170 x P.O.J.2878	" x " x " ...	68	130	33
B.46103 x B.41227 ...	" x " x " ...	85	—	42
B.46288 x B.42231 ...	" x " x " ...	225	—	37
B.5011 x B.47419 ...	" x " x " ...	163	210	132
B.5012 x B.4738 ...	" x " x " ...	24	—	15
B.5037 x B.42231 ...	" x " x " ...	140	—	58
B.5037 x B.4534 ...	" x " x " ...	111	—	28

APPENDIX II (Continued)

CROSS	GROUP	No. PLANTED IN THE FIELD NURSERY		No. Planted in the First Year Seed- ling Trial
		Singles	Bunches	
B.5041 x B.4744 ...	Noble x Local x Glagah x Chunnee	156	145	66
B.5142 x B.4098 ...	" x " x "	18	—	10
B.51190 x B.4098 ...	" x " x "	117	—	39
B.51131 x B.4098 ...	" x " x "	72	—	30
B.51311 x B.4738 ...	" x " x "	7	—	5
H.32-8560 x B.4098 ...	" x " x "	138	—	64
Co.421 x B.47419 ...	" x " x "	97	297	82
P.O.J.2878 x B.34104 ...	" x " x "	38	—	12
P.O.J.3016 x B.4098 ...	" x " x "	133	—	37
N.Co.79 x B.603 ...	" x " x "	7	—	—
Pepe Cuca x B.391 ...	" x " x "	6	—	—
P.R.1000 x B.4098 ...	" x " x "	58	1,123	291
P.R.1000 x B.41227 ...	" x " x "	450	—	88
F.36/819 x Ba.6032 ...	" x " x "	56	—	24
B.4145 x B.43290 ...	Noble x Local x Glagah x Celebes x Chunnee	103	—	20
B.43283 x P.O.J.2878 ...	" x " x "	143	—	30
B.43349 x B.47320 ...	" x " x "	122	282	130
B.43380 x B.51122 ...	" x " x "	31	—	13
B.46103 x B.50377 ...	" x " x "	17	—	7
B.4970 x B.4098 ...	" x " x "	42	—	19
B.50196 x B.4098 ...	" x " x "	36	—	15
B.50196 x B.47419 ...	" x " x "	215	337	46
B.50210 x B.4098 ...	" x " x "	216	28	94
B.50370 x B.4098 ...	" x " x "	218	68	85
		5,754	3,111	2,422
	<i>S. officinarum x S. spontaneum x</i> <i>S. barberi x S. sinense</i>			
B.35207 x B.45151 ...	Noble x Local x Chunnee x Sinense ...	178	5	55
Ba.11569 x B.45116 ...	Noble x Glagah x Chunnee x Sinense	12	—	4
B.39254 x B.41227 ...	" x " x "	23	—	13
B.50352 x B.46136 ...	" x " x "	6	—	4
B.5188 x B.41227 ...	" x " x "	7	—	2
B.39254 x B.50377 ...	Noble x Local x Glagah x Celebes x Chunnee x Sinense	24	—	11
B.45152 x B.50377 ...	" x " x "	11	—	7
B.3439 x B.45151 ...	Noble x Local x Glagah x Chunnee x Sinense	319	183	163
B.4362 x B.50340 ...	" x " x "	652	—	240
B.44111 x B.41227 ...	" x " x "	196	—	56
B.44182 x B.45151 ...	" x " x "	190	—	48
B.45152 x B.4747 ...	" x " x "	30	—	10
B.45152 x B.48392 ...	" x " x "	160	—	40
B.45152 x B.5047 ...	" x " x "	18	—	6
B.45154 x B.49119 ...	" x " x "	182	765	215
B.49372 x B.45151 ...	" x " x "	220	135	65
B.5061 x B.4098 ...	" x " x "	208	69	70
B.50146 x B.4744 ...	" x " x "	14	—	7
		2,450	1,157	1,016

APPENDIX II (Concluded)

CROSS	GROUP	No. PLANTED IN THE FIELD NURSERY		No. Planted in the First Year Seedling Trial
		Singles	Bunches	
B.49170 x B.603 ...	<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> x <i>S. robustum</i> Noble x Glagah x Chunnee x Robustum ...	259	16	70
B.4455 x B.603 ...	<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. robustum</i> Noble x Glagah x Robustum	193	9	48
B.47155 x B.603 ...	Noble x Celebes x Robustum	230	—	42
B.47324 x B.603 ...	Noble x Local x Glagah x Robustum ...	42	—	16
		465	9	106
B.45152 x C.P.43/64 ...	<i>Position Uncertain at Present</i>	57	—	14
	GRAND TOTALS ...	10,265	5,319	4,166

